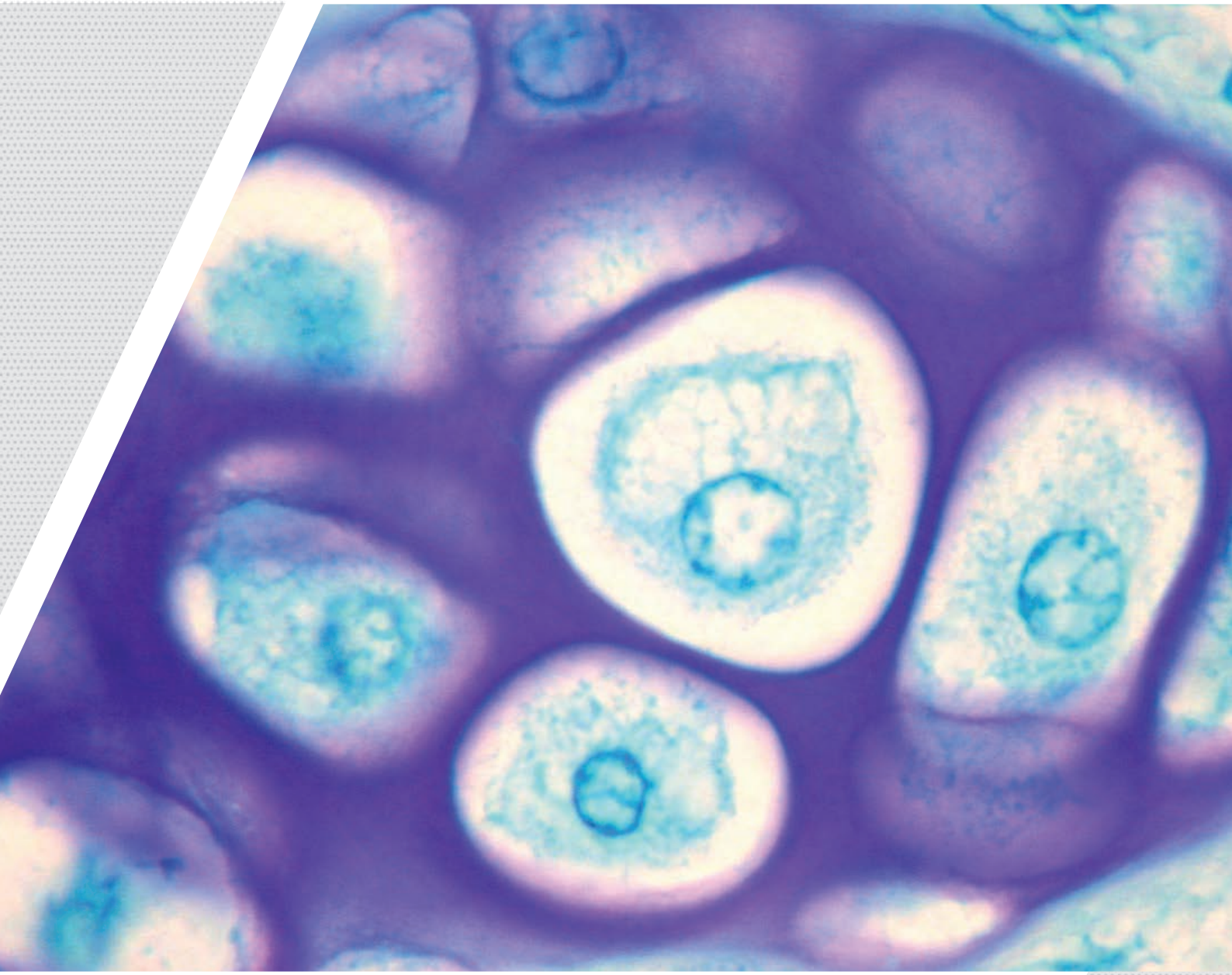
Reagents for Hospitals

Medical and Research Laboratories



PanReac AppliChem
ITW Reagents

Reagents for Hospitals

Summary

PanReac AppliChem
ITW Reagents

About Us

The Origin

ITW Illinois Tool Works Inc. (NYSE: ITW) is a global industry company that delivers specialized expertise, innovative thinking and value-added products to meet critical customer needs in a variety of industries.

ITW, with approximately 14 billion dollars in global revenues, operates 7 major segments with businesses in 58 countries that employ approximately 50,000 employees. The company has a broad portfolio of more than 17,000 global patents and patent applications.

The ITW Reagents Division

In 2010, the ITW Reagents division was born integrated by the companies Panreac Química SLU (Spain) and Nova Chimica Srl (Italy), and later on by AppliChem GmbH (Germany). The division offers the highest quality and innovative products for analysis, research and production applications.

ITW Reagents markets its products worldwide through an extensive distribution network to more than 80 countries under the PanReac AppliChem brand. It has two production plants in Darmstadt (Germany) and Barcelona (Spain).

1912 ITW → 1941 Panreac Química → 1980 Nova Chimica → 1992 AppliChem

We are Everywhere

We can say that almost all products subject to human manipulation have undergone chemical analysis that guarantees their physical and chemical properties. Food, agrifood, medicines, cosmetics... and so many other products are subjected to chemical analysis. Our reagents can be found in any quality control and research laboratory.

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Our range of Laboratory Chemicals include:

Analytical reagents
Reagents for volumetric analysis
Reagents and solvents for general applications
Reagents and solvents for HPLC
Reagents and solvents for GC
Reagents for metallic traces analysis
Analytical standards
Reagents and solvents for specific applications
Products for clinical diagnosis
Products for microbiology

Our range of Laboratory Biochemicals cover:

Cell Biology / Cell Culture
Protein Biochemistry and Electrophoresis
Nucleic Acid Biochemistry
General Biochemicals and Biological Buffers
Special Biochemicals

Service & Benefits

Exceptional know-how and a wide range of chemicals and biochemicals for a great diversity of applications.

European production committed to corporate social responsibility (CSR).

Efficient global distribution network to export our products worldwide to more than 80 countries.

Qualified management team fully committed to our business project.

Excellence

Our products are strictly controlled in our laboratories and meet the highest quality requirements. A multi-site Integrated Management System for Quality, Environment and Safety is implemented in all activities and processes.

ISO 9001:2015 | ISO 14001:2015 | OHSAS 18001:2007

Reagents for Hospitals

Medical and Research Laboratories

Medical Laboratories are focused on applied science mainly on a production-like basis, as opposed to **Research Laboratories** that focus on basic science on an academic basis.

A Medical Laboratory or clinical laboratory is where tests are usually done on clinical specimens in order to obtain information about the health of a patient as pertaining to the **diagnosis**, treatment, and prevention of disease.

Research Laboratories use the conventional techniques for Genomics, Proteomics and Cell Culture procedures.

PanReac AppliChem Products for Hospital Laboratories:
- Medical Laboratories: Products for Microscopy.
- Research Laboratories: Products for Genomics, Proteomics and Cell Culture.

In the first part of the brochure we will focus on the Clinical Pathology and Microbiology laboratories according to the type of investigation and the main fields that use microscopy for the analysis: Citology, Haematology, Microbiology and Histology. At the end you will find reagents for Research Laboratories.

Medical Laboratories

In many countries there are mainly **two types** of **Medical Laboratories** as per the types of investigations carried out.

Hospital laboratories

Attached to a hospital to perform tests on patients. We can find 4 different types.

Clinical Pathology:
Hematology, Histopathology, Cytology, Routine Pathology.

Clinical Microbiology:
Bacteriology, Mycobacteriology, Virology, Mycology, Parasitology, Immunology, Serology.

Clinical Biochemistry:
Biochemical analysis, Hormonal assays, etc.

Molecular diagnostic laboratory or cytogenetics and molecular biology lab.

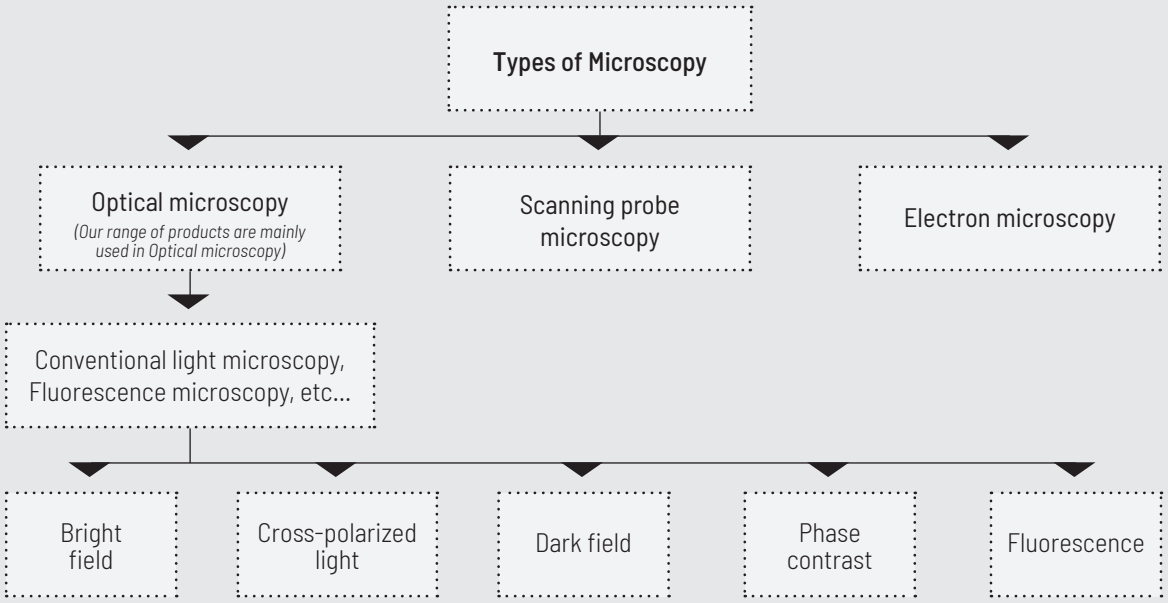
Outside clinical laboratories

For extremely specialized tests, sample may go to an external research laboratory.

Microscopy

Introduction

The diagnosis and prognosis of numerous diseases can be facilitated by investigating cells and tissues under the **microscope**. This is the role of **histopathology in diagnostic medicine**.



PanReac AppliChem has a full range of products for histology, haematology and microbiology, which includes the most commonly used reagents in the process of preparing samples for examination under the microscope. With this range, all the stages of fixing, clearing, paraffin inclusion, staining and mounting are covered.

We also have a wide range of products for Research in different fields of Life Sciences for assays to be developed in hospital laboratories: genomics, proteomics and cell cultures.

The majority of the products used in microscopy technique are encompassed in the Clinical Diagnosis quality, with the CE mark in compliance with the provisions of the European Directive on products for "in vitro" diagnosis.

CE IVD

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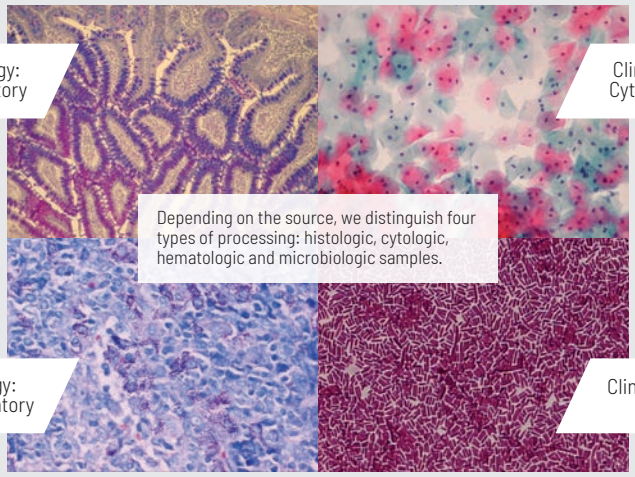
Sample Processing

Sample processing is the sum of operations aimed at the **study of cells and tissues**. Its final purpose is the microscopic observation and for this **we will obtain pieces or preparations** of small thickness.



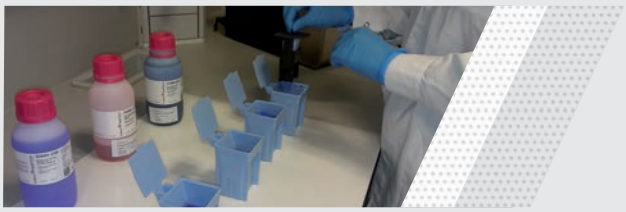
Getting the sample

Different sources

- **Biological fluids:** blood urine, mucoses, etc...
- **Biopsies:** pieces of tissue obtained from a living subject.
- **Operated parts:** tissues that have been removed from the surgical interventions.
- **Necropsies:** pieces that are obtained from a corpse.

Types of processing

Manual Techniques



Manual processing is the most typical method in Hospital laboratories. Drying, inclusion, dehydrating and staining are made by hand. This implies the exposition to toxic vapors of the different components used during the process.

Automatic Sample Processing

In big laboratories, automatic processing is carried out. In these cases, reagents used for the sample preparation is the same but usually, packaging is different. Main advantages are low exposure to chemicals, time saving and same conditions in all analysis.

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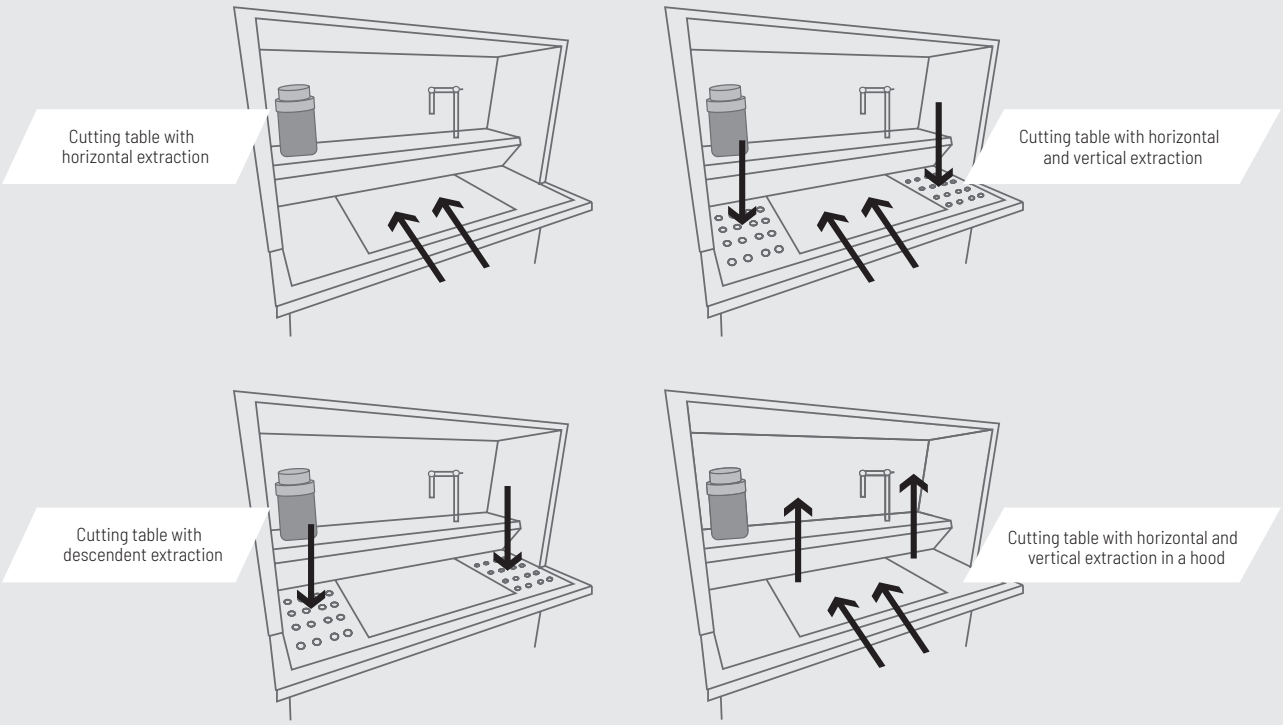
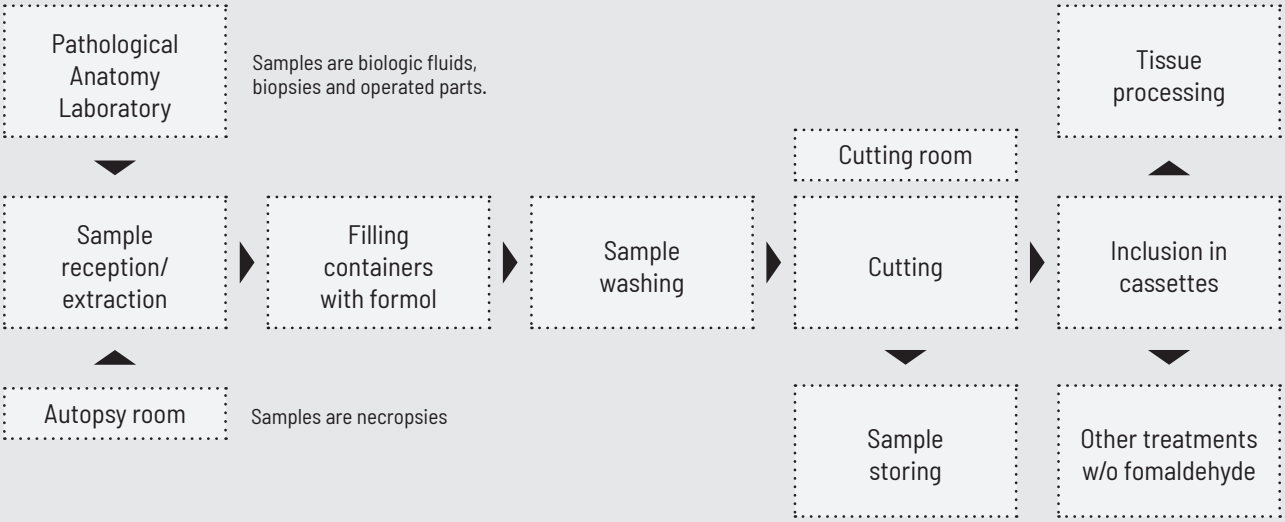
Pathological Anatomy Laboratory process

Pathological Anatomy laboratories are typically the facilities where cytologic and histologic samples are collected and processed for microscopy.

Formaldehyde is widely used in the laboratory of pathological anatomy for fixing and is typically handled on cutting tables with different aspiration systems.



From sampling to processing



Techniques and stages

Although most of the stages are common, some of the steps are exclusive only for one type of sample processing. For example, inclusion is only done on tissues and heat fixation only on blood samples.

Type of Sample	Fixing	Drying and Clearing	Inclusion	Cutting	Rehydration	Staining	Mounting	Microscopy
Histologic	•	•	•	•	•	•	•	•
Microbiologic Hematologic Cytologic	•					•	•	•

Fixing

Fixation, what is it?

Fixation interrupts degradation processes after cell death, trying to preserve tissue / cell architecture and composition as closely as was possible in the living organism.

- It is the most essential stage
- Fixation ≠ Conservation
- There is no universal method of fixation

How does it act?

Denaturing and insolubilizing (tissue) proteins, which blocks autolysis by enzyme inactivation.

Note: Autolysis is cellular enzymatic autodigestion, after the exit of lysosomal contents into the cytoplasm by rupture of delimiting membrane of these organelles.

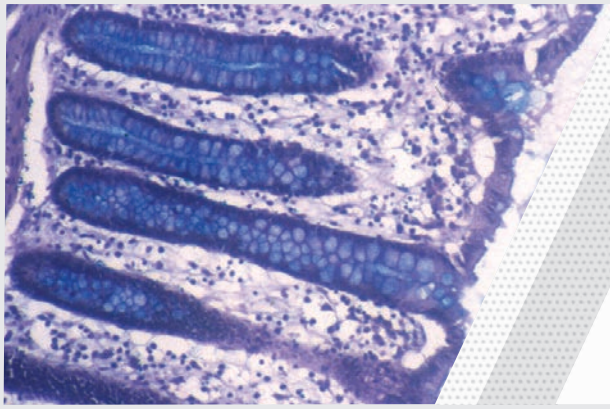
Types of action

Physical agents

- Instant Freezing (ie. isopentane at -50 ° C)
- Freeze drying (freeze-drying by sublimation of water)
- Cryo-substitution (freezing and replacement of water by fixative liquid)

Chemical Agents

- Simple fixative agents
- Mixtures of fixatives



Chemical Agents Key features

- Block immediately the autolysis
  - Penetration rate
  - Fixing speed
- Microbiocidal effect (prevent putrefaction)
- Cause NO shrinkage or distortion
- Promoting inclusion, cutting and staining (mordant effect)

Types of Chemical Fixative Agents

Simple Fixatives (Substances):

- Ethanol
- Formaldehyde
- Glutaraldehyde
- Osmium Tetroxide
- Uranyl acetate

Fixative Mixtures:

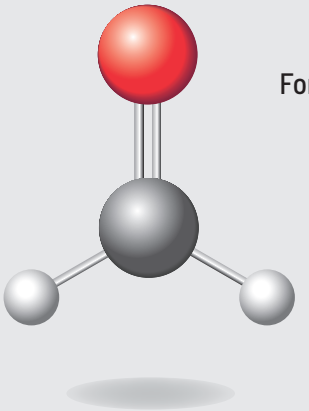
- Fixative B5
- Zenker Fixative
- Bouin Liquor
- Carnoy's solution
- Ethanol:Ether 1:1

There is **no ideal fixative,** all fixing agents currently available offer advantages and disadvantages that will make them suitable for different types of samples and studies.

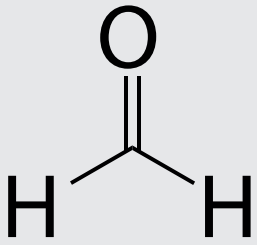
The fixation rate of a chemical agent is not always in agreement with its rate of penetration: **formaldehyde** is a fixative that penetrates relatively quickly in the tissue and, nevertheless, fixes it with a certain slowness.

The fastest fixatives are alcohol and acetone. The formaldehyde has a fixation rate of 0.9 – 1 mm / hour and the picric acid 0.3 mm / hour.

Formaldehyde, is the better known Chemical Agent used as Fixation media.



Formaldehyde



Formaldehyde Fixation Procedure

The fixation of the samples should take place according to the size and the characteristics of the tissue. In order to obtain an optimum fixation, this must be done as soon as possible after the extraction of the sample from the tissue. The penetration of formaldehyde into tissue is related to temperature.

1. The pieces of tissue are introduced into formalin solution 3.7 - 4.0%.
2. Place samples in a sufficiently wide container (to avoid spills and allow good handling) with a volume of fixative of at least 20 times greater than that of the sample.
3. Although not essential, constant and gentle agitation is recommended.
4. Time of impregnation: it will depend on the size of the sample and the temperature (with heat the fixation is faster but of lower quality).

5. In a refrigerated environment, the fixation is slower but the cold reduces the processes of degradation while fixation occurs. This is why it is usually done at room temperature or at 4 °C and adjust the setting time according to the nature of the sample and the chosen temperature.
6. The fixing time is usually a few hours at room temperature (for small samples), and up to 12 hours or more, if the fixation is carried out at 4 °C.
7. Once the fixing process is finished, it is recommended to perform three washes of at least 5 minutes in running water.

Reagents for Hospitals

Fixing

Histofix pre-dosed and Substitutes of Formaldehyde

Formaldehyde is widely used in the laboratory of pathological anatomy.

There is **a significant exposure by workers** (0.2-0.8 ppm TWA 15 min) in many hospitals (Example Spain)

Exposure to formaldehyde may cause adverse health effects (irritation, sensory disturbances and cancer).

Since 2014 there are new international rules for the handling of formol in laboratories.

Commission Regulation (EU) 605/2014 and amendment Nº 2015/491

- New rules for **classification** and **labeling** of **dangerous substances**
- **Precautionary statements** and use of these substances

Formaldehyde is one of the substances affected:
Most important change:

Warning → Danger

Two different alternatives for manipulation

Use an alternative substance

Description	Code	Package
Histofix ® Substitute of Formaldehyde Composition: Glyoxal ..... 15-25 % Ethanol absolute ..... 5-8 % Acetic Acid glacial ..... < 5 % Methanol ..... < 0.5 %	255805.2711	1000 ml
	255805.2714	5 L
Histofix ® Substitute of Formaldehyde ready to use	257157.1211	1000 ml
	257157.1214	5 L

Decrease the exposure times

Description	Code	Package
Histofix ® Preservative ready to use Assay (Iodom.): 3.7-4.0 % Formaldehyde pH: 6.8-7.2	256462.0905	45x10 ml
	256462.0967	24x75 ml
Other sizes available	256462.0944	12x200 ml
CE	256462.09118	1.5 L

Histofix® is a trademark of Panreac Quimica SLU

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Fixing

Reagents for Fixing

Product name	Application	Code	Package
Bouin Liquor CE Composition: Picric Acid moistened with ~33% H20 .....1.125 g Acetic Acid glacial ..... 5 ml Formaldehyde 35-40% ..... 25 ml Water ..... 77 ml	Fixative for preserving soft and delicate structures, used as a mordant in various trichrome procedures	254102.1611	1000 ml
Ethanol 99.8 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 1.0 L IPA, 1.0 L MEK and 1.0 g Bitrex	Fixation by tissue dehydration, it has high rate of penetration and fixation, and bactericidal effect (good preservative)	147194.1212	2.5 L
		147194.1214	5 L
		147194.1215	10 L
		147194.0716	25 L
Ethanol absolute CE	Fixation by tissue dehydration, it has high rate of penetration and fixation, and bactericidal effect (good preservative)	251086.1211	1000 ml
		251086.1212	2.5 L
		251086.9914	5 L
		251086.1214	5 L
		251086.1215	10 L
		251086.1315	10 L
Ethanol 96% v/v CE	Fixation by tissue dehydration, it has high rate of penetration and fixation, and bactericidal effect (good preservative)	251085.1212	2.5 L
		251085.1214	5 L
		251085.1315	10 L
Ethanol 96 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 0.96 L IPA, 0.96 L MEK and 0.96 g Bitrex	Fixation by tissue dehydration, it has high rate of penetration and fixation, and bactericidal effect (good preservative)	147195.1211	1000 ml
		147195.1212	2.5 L
		147195.1214	5 L
		147195.0716	25 L
Ethanol 70 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 0.7 L IPA, 0.7 L MEK and 0.7 g Bitrex	Fixation by tissue dehydration, it has high rate of penetration and fixation, and bactericidal effect (good preservative)	147196.1212	2.5 L
		147196.1214	5 L
		147196.1215	10 L
		147196.0716	25 L
Ethanol-Diethyl Ether 1:1		251084.1610	500 ml
Fixing for fast staining (Panoptic No. 1)	Fixing solution for further panoptic staining	254101.1210	500 ml
		254101.1212	2.5 L
Formaldehyde 30-36% w/v concentrated buffered to pH=7 stabilized with methanol CE	Concentrated formalin, to be diluted with water or with buffer solution, to reach the corresponding working concentration	253572.1211	1000 ml
		253572.1214	5 L
Formaldehyde 3.7-4.0% buffered to pH=7 and stabilized with methanol CE	Ready-to-use formalin	252931.0922	48x30 ml
		252931.1211	1000 ml
		252931.1212	2.5 L
		252931.1214	5 L
		252931.9914	5 L
		252931.1215	10 L
		252931.1315	10 L
		252931.0716	25 L
Formaldehyde solution 10% neutralized, stabilized with methanol		143091.1214	5 L
		143091.1215	10 L

**Check availability in your country*

Reagents for Hospitals

Fixing

Product name	Application	Code	Package
Glutaraldehyde solution 25%	Fixing reagent for electronic microscopy	253857.1611	1000 ml
Histofix ® Preservative ready to use CE 	Ready-to-use formalin, pre-filled formalin containers	256462.0905	45x10 ml
		256462.0955	44x20 ml
		256462.0962	45x30 ml
		256462.0961	45x40 ml
		256462.0967	24x75 ml
		256462.0943	16x125 ml
		256462.0944	12x200 ml
		256462.09149	10x600 ml
		256462.09118	1.5 L
		256462.0931	3 L
Histofix ® Preservative ready to use (pink) CE 	Pink ready-to-use formalin, pre-filled formalin containers for small samples	257462.0905	45x10 ml
		257462.0962	45x30 ml
Histofix® Substitute of Formaldehyde Composition: Glyoxal ..... 15-25 % Ethanol absolute ..... 5-8 % Acetic Acid glacial ..... <5 % Methanol ..... <0.5 %	Concentrated substitute of Formaldehyde	255805.2711	1000 ml
		255805.2714	5 L
Histofix® Substitute of Formaldehyde ready to use Specifications: pH ..... 3.4 – 4.5	Substitute of Formaldehyde ready to use	257157.1211	1000 ml
		257157.1214	5 L
Histofix® Spray fixative CE Composition: Polyethylene Glycol 6000 .....50 g Water ..... 75 ml Ethanol s.q.m. .....925 ml	For fixing samples in Papanicolaou stain	256700.3408	6x100 ml
Isopentane	Fixative for cryo-substitution	123501.1611	1000 ml
Embalming Mixture Composition: Phenol 90% ..... 12.5 ml Ethanol 96% ..... 62.5 ml Formaldehyde solution 35-40% ..... 7.5 ml Glycerol ..... 17.5 ml	For corpse embalming	214632.1214	5 L
		214632.0716	25 L

Decalcifiers

Decalcification is a process of complete removal of calcium salt from the tissues like bones and teeth and other calcified tissues to assure that the specimen is soft enough to facilitate cutting with a microtome and **without interfering with the subsequent staining** process.

What are they?

- Strong acids
  - Nitric acid
  - Hydrochloric acid
- Organic weak acids
  - Formic acid
  - Acetic acid
  - Trichloroacetic acid
- Chemical chelating agents
  - EDTA

Keys of decalcifiying process

- Complete fixation before decalcifying
- Optimal concentration
- Optimal volume (1:20)
- Blocks suspended in container center
- Ideal temperature 25ºC
- Gentle shaking
- Ion Exchange Resin
- Washing with neutralizing solutions
- Time control

It is considered that decalcification is finished when the object is soft and is able to be cut quite easily.

Time control
Longer duration → cell destruction
Minor duration → difficult microtome sections

How to control decalcification?
Physical methods (touch) → subjectivity
Radiological methods → expensive instrumental
Chemical methods (detection of Ca^{2+}) → test of calcium oxalate

Reagents for decalcification

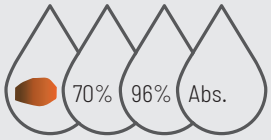
Product name	Application	Code	Package
Histofix ® marrow decalcifier Comprised of: 3x100 ml Solution A fixative 3x100 ml Solution B decalcifier	Marrow decalcifier	256284.0922	Pack
Histofix ® decalcifier 1	Slow decalcifier and fixing agent	256239.1211	1000 ml
Histofix® decalcifier 2	Medium decalcifier for fixed tissues	256238.1211	1000 ml
Histofix® decalcifier 3	Fast decalcifier for fixed tissues	256237.1211	1000 ml

Drying and Clearing

Drying is the complete removal of water from the specimen or tissue sample so that it can be properly embedded in the inclusion media other than water soluble. Fixed and washed pieces are taken to 96% alcohol and then to absolute alcohol for a variable time, usually one and a half hour in each bath.

Drying/Dehydrating Key points

- Do not alter tissue structures
- Miscible with the clearing agent
- Quick
- Minimal hardening
- Not toxic



What must be considered?

- Graduation of the alcohols
- Volume and number of dehydration baths
- Duration of dehydration

Volume and number of dehydration baths

It is not necessary that the volume of alcohol is too high. In general, a bath volume 10 times greater than the volume of the sample is usually recommended. It is recommended to multiply the number of baths because they involve:

- Less permanence in the bath.
- Lower saturation of water in alcohol.
- Better control over the degree of dehydration.
- Lower risk of tissue disruption.

Duration of dehydration

It is based on the volume of the tissue fragments and their content in water, taking into account that ***dehydration must be complete***, and prolonged exposure causes a hardening of the tissues.

Graduation of alcohols

In practice, the dehydration operation is carried out using a series of *ascending gradient alcohols (50, 70, 80, 95, 100%),* since the abrupt action of a highly graded alcohol on the tissue would cause a marked retraction of this one.

The use of more or less long series of different gradation alcohols, as well as the decision to start the process in medium or low grade alcohol, will be based on ***personal experience***, the fragility of the tissues to be included and the type of fixative agent used.

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Drying and Clearing

Reagents for Drying

Product name	Code	Package
Ethanol 70% v/v	252695.1215	10 L
Ethanol 96% v/v CE	251085.1212	2.5 L
	251085.1214	5 L
	251085.1315	10 L
Ethanol 96% v/v partially denatured **	212800.1211	1000 ml
	212800.1214	5 L
	212800.1315	10 L
	212800.0716	25 L
Ethanol absolute CE	251086.1211	1000 ml
	251086.1212	2.5 L
	251086.9914	5 L
	251086.1214	5 L
	251086.1215	10 L
	251086.1315	10 L
Ethanol absolute partially denatured **	212801.1211	1000 ml
	212801.1214	5 L
	212801.2814	5 L
	212801.1315	10 L
	212801.0716	25 L
Ethanol 99.8 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 1.0 L IPA, 1.0 L MEK and 1.0 g Bitrex	147194.1212	2.5 L
	147194.1214	5 L
	147194.1215	10 L
	147194.0716	25 L
Ethanol 96 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 0.96 L IPA, 0.96 L MEK and 0.96 g Bitrex	147195.1211	1000 ml
	147195.1212	2.5 L
	147195.1214	5 L
	147195.0716	25 L
Ethanol 70 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 0.7 L IPA, 0.7 L MEK and 0.7 g Bitrex	147196.1212	2.5 L
	147196.1214	5 L
	147196.1215	10 L
	147196.0716	25 L

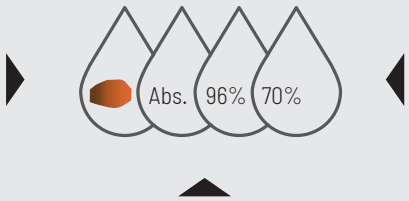
** Check availability in your country*
*** Only available in Spain*

Reagents for Hospitals

Drying and Clearing

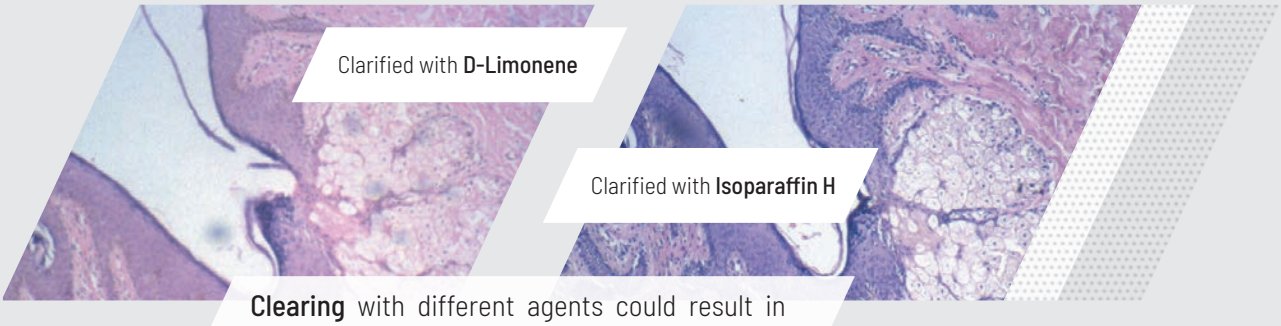
Clearing process is the replacement of the dehydrating agent with a substance miscible with the embedding medium to be used.

It is intended that the whole histopathological piece is embedded in a liquid chemical agent, in which the inclusion medium can be dissolved, and thus penetrate the tissue.



The general technique of handling the clearing agents includes successive baths of variable duration depending on the characteristics of the agent and the part.

Its purpose is not, as its name seems to indicate, to make the tissue **transparent**, although in some cases this may occur.



Clearing with different agents could result in different contrast and sharpness of the sample.

Reagents for Clearing

Product name	Application	Code	Package
Xylene, mixture of isomers CE	Clearing on xylene base	251769.2711	1000 ml
		251769.2712	2.5 L
		251769.2714	5 L
Citrosol (Substitute of Xylene) CE Density at 20/4: 0.841-0.843 Specific rotation [α] 20/D (without dil.) +113 - +120°	Clearing on limonene base	253139.1611	1000 ml
		253139.1612	2.5 L
		253139.1214	5 L
Isoparaffin H (Substitute of Xylene) CE Density at 15/4: 0.765	Clearing on isoparaffinic base	255069.2711	1000 ml
		255069.2714	5 L
Toluene Density at 20/20: 0.865-0.870	Clearing on toluene base	131745.1611	1000 ml
		131745.1612	2.5 L
		131745.0314	5 L
		131745.0616	25 L

Inclusion

Embedding media

Embedding consists in replacing the water of the tissue by a liquid medium capable of solidifying under the **appropriate temperature conditions,** in order to provide the sample with adequate **consistency and homogeneity** to obtain very thin translucent sections by means of an instrument called a **microtome**.

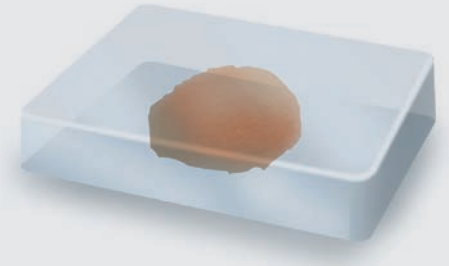
The basis of the process lies in the complete **occupation** with this medium of the **intra and extracellular spaces** initially filled by the intratisular water.

Depending on the thickness of the cuts to be obtained, the type of tissue and the cutting temperature (the room temperature must be 30 to 35 °C lower than the paraffin melt), one or the other type of paraffin will be used. Typically, paraffins commonly used have a melting temperature of 54 ° to 58 ° C.

The **ultimate purpose** of the process is to provide the anatomical piece with **sufficient homogeneity and hardness** to obtain fine sections of quality.

Paraffins are wax-like substances composed of mixtures of long-chain saturated hydrocarbons that can be obtained with a wide variation in their melting point (40 ° to 70 °C).

Embedding (Infiltration and inclusion) is definitively optimized in **paraffin.**



Example of histologic procedure times

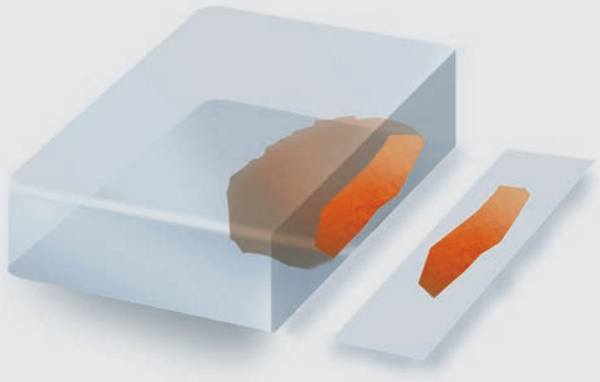
Stage	Baths	Processing time
Fixing	Formol	
Dehydration	Ethanol 70%	2 hours
	Ethanol 96 %	2 hours
	Ethanol absolute	2 hours
	Ethanol absolute	1 hour
	Ethanol absolute	1 hour
Clearing	Xylene/Citrosol/Isoparaffin H	1 hour
	Xylene/Citrosol/Isoparaffin H	1 hour
	Xylene/Citrosol/Isoparaffin H	1 hour
Inclusion	Paraffin	1 hour
	Paraffin	1 hour
	Paraffin	2 hours

Reagents for Embedding

Product name	Application	Code	Package
Paraffin M.P. 51-53°C pellets	For both infiltration and/or embedding	253209.1211	1000 g
Paraffin M.P. 55-58°C CE plasticized + DMSO pellets 	DMSO increases the rate of penetration of paraffin and provides additional preservation, the addition of polymers prevents sprinkling, air-filled slits between the paraffin crystals that can adversely affect the sectioning procedure	256993.0933	6 x 1 kg
		256993.0415	10 kg
Paraffin M.P. 56-58°C CE pellets	For both infiltration and/or embedding	253211.1211	1000 g
		253211.0914	5 kg
Paraffin M.P. ~ 42-44°C Pieces, low melting point	Near to corporal temperature	213206.0911	1000 g
		213206.0914	5 kg
Paraffin Cleaner CE Composition: Isoparaffin H ..... 425 ml 1-Propanol ..... 75 ml	Microtomes cleaner used in the processing of human tissue	256876.3408	6 x 100 ml

Cutting

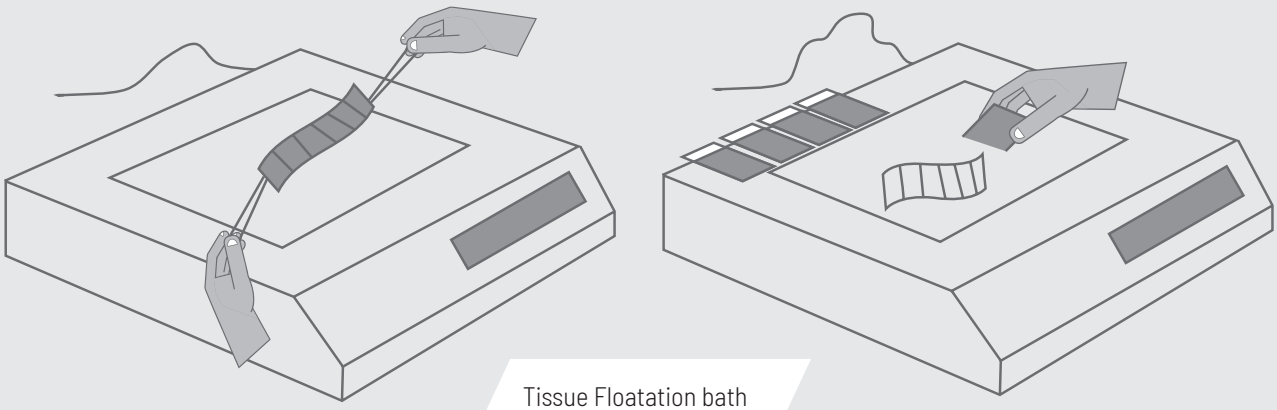
Paraffin included tissues are reduced to cuts thin enough (4-6 microns) to allow the passage of light to examine it under a microscope. This is made with a **microtome**: a mechanical instrument with which tissue sections of micrometric thickness are made



Typically it is, along with the staining, the task in which more hours are invested.

The section is made with instruments called microtomes, and is intended to obtain translucent preparations that can be stained and observed under an optical microscope.

Once the tissue is cut, the cut is set onto a slide where the processing continues with deparaffination and staining. For this purpose, cut paraffin slices containing the tissue are deposed on a warm water bath and "fished" with the glass slides.



Tissue Floatation bath

Rehydration

Deparaffinization-Hydration

Deparaffinization-Hydration is the process of removing the inclusion medium from paraffin-embedded tissue sections and rehydrating for proper penetration of the dyes.

Example of Deparaffinization-Hydration times

Stage	Baths	Processing time
Deparaffinization	Xylene/Citrosol/Isoparaffin H	10 min
	Xylene/Citrosol/Isoparaffin H	10 min
	Xylene/Citrosol/Isoparaffin H	10 min
Hydration	Ethanol absolute	1-2 min
	Ethanol 96 %	1-2 min

Reagents for Deparaffinization-Hydration

Product name	Code	Package
Ethanol 70% v/v	252695.1215	10 L
Ethanol 96% v/v CE	251085.1212	2.5 L
	251085.1214	5 L
	251085.1315	10 L
Ethanol 96% v/v partially denatured **	212800.1211	1000 ml
	212800.1214	5 L
	212800.1315	10 L
	212800.0716	25 L
Ethanol absolute CE	251086.1211	1000 ml
	251086.1212	2.5 L
	251086.9914	5 L
	251086.1214	5 L
	251086.1215	10 L
	251086.1315	10 L
Ethanol absolute partially denatured **	212801.1211	1000 ml
	212801.1214	5 L
	212801.2814	5 L
	212801.1315	10 L
	212801.0716	25 L

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Product name	Code	Package
Ethanol 99.8 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 1.0 L IPA, 1.0 L MEK and 1.0 g Bitrex	147194.1212	2.5 L
	147194.1214	5 L
	147194.1215	10 L
	147194.0716	25 L
Ethanol 96 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 0.96 L IPA, 0.96 L MEK and 0.96 g Bitrex	147195.1211	1000 ml
	147195.1212	2.5 L
	147195.1214	5 L
	147195.0716	25 L
Ethanol 70 % denatured with IPA, MEK and Bitrex* Contains per 100 L: 0.7 L IPA, 0.7 L MEK and 0.7 g Bitrex	147196.1212	2.5 L
	147196.1214	5 L
	147196.1215	10 L
	147196.0716	25 L
Xylene, mixture of isomers CE	251769.2711	1000 ml
	251769.2712	2.5 L
	251769.2714	5 L
Citrosol (Substitute of Xylene) CE	253139.1611	1000 ml
	253139.1612	2.5 L
	253139.1214	5 L
Isoparaffin H (Substitute of Xylene)	255069.2711	1000 ml
	255069.2714	5 L

** Check availability in your country*
*** Only available in Spain*

Staining

Dyes for microscopy

What are they?

Generally, all tissues of animal origin are colorless unless they contain some type of pigment, in which case they adopt the color provided by the latter (pigment).

Dyes are substances that in contact with a suitable support, join it in an enduring manner transmitting its color to it.

Microscopic photography with its intensity of color and contrast is basically determined by the quality of the solution (stability, pH, concentration, etc ...) as well as by the technical procedure used.

Dyes are used in microscopy when there is a need to visualize the components of animal and plant tissues.

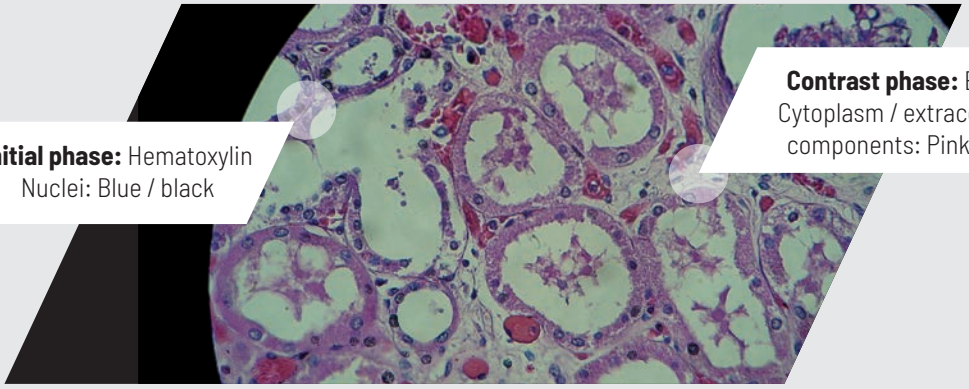
Microscopy dyes are used mainly in **histology, cytology and microbiology** but also in other analytical techniques.

There are two types of microscopy dyes:

- **Natural Dyes** obtained in the form of extracts from certain plants or insects.
  - Nuclear: Hematoxylin and Carmine
  - Cytoplasmic: Safranin and Orcein
- **Synthetic Dyes** mostly derived from aniline.
  - Nuclear: Methyl Green, Basic Fuchsin, Cresyl Violet
  - Cytoplasmic: Eosin, Phloxine

Hematoxylin-Eosin Stain: routine staining of whole tissues

There are multiple variants of Hematoxylin-Eosin Stain. This stain is always composed by two phases:



Hematoxylins

Dye or stain	Features
Carazzi's Hematoxylin	Oxidizer: Sodium Iodate Auxochrome: Aluminum Potassium Sulfate Glycerin: Provides longer solution life
Gill's Hematoxylin	Oxidizer: Sodium Iodate Auxochrome: Aluminium Sulfate Acid: Glacial Acetic Acid that slows oxidation
Harris Hematoxylin	It is the most frequently used hematoxylin stain in the routine staining of cell nuclei, mainly due to its stability (preserved from 6 to 12 months) and its ease of handling. Oxidizer: Mercury (II) Oxide Auxochrome: Aluminum Potassium Sulfate Ethanol 96%: gives great stability
Mayer's Hematoxylin	Hematoxylin lacquer very selective to color nuclear chromatin and, because it is a progressive staining, does not require further differentiation. Oxidant: Aluminum Potassium Sulfate Auxochrome: Sodium Iodate
Weigert's Hematoxylin	This ferric hematoxylin is very useful for performing nuclear staining when it is necessary to complete the staining with strongly acid solutions specific for the cytoplasm and extracellular tissue components capable of dissolving the conventional aluminum-containing hematoxylin lacquers. This occurs with most of the trichrome colorations of connective tissue. The two Weigert solutions are mixed so that chromogen (hematoxylin) and mordant (iron III chloride) are linked and bound to the tissue.

Note: An auxochrome is a group of atoms as bivalent or trivalent metal salts that increase dyeing ability of the dye.

Eosins

Dye or stain	Features
Eosin Y	It is the most often used (also known as eosin Y ws, eosin yellowish, Acid Red 87, C.I.45380, bromoeosine, bromofluoresceic acid, D&C Red No. 22. It has a very slightly yellowish cast. Eosin Y is a tetrabromo derivative of fluorescein.
Eosin B	Eosin bluish, Acid Red 91, C.I. 45400, Saffrosine, Eosin Scarlet, or imperial red. It has a very faint bluish cast. Eosin B is a dibromo dinitro derivative of fluorescein.

Reagents for Hospitals

Staining

Reagents for Staining

Powdered dyes

Product name	Application	Code	Package
Alcian Blue 8 GX (C.I. 74240)	For histology, PAS-Alcian Blue staining, certified by the Biological Stain Commission	254584.1604	5 g
		254584.1606	25 g
Aniline Blue WS (C.I. 42755)	For collagen staining	253708.1606	25 g
Brilliant Cresyl Blue (C.I. 51010)	Platelets and thrombocytes staining	251169.1604	5 g
Brilliant Green (C.I. 42040)	Vegetal tissue staining	251758.1606	25 g
		251758.1608	100 g
Bromophenol Blue	Proteins staining	131165.1604	5 g
		131165.1606	25 g
Bromothymol Blue	Vital staining	131167.1604	5 g
		131167.1606	25 g
Carmine (Lacquer of carminic acid with calcium and aluminium) (C.I. 75470)	Nucleus and glycogen staining	251824.1605	10 g
Coomassie Brilliant Blue G-250 (C.I. 42655)	For electrophoresis	A3480,0025	25 g
Coomassie Brilliant Blue R-250 (C.I. 42660)	For electrophoresis	A1092,0025	25 g
		A1092,0100	
Crystal Violet (C.I. 42555)	Bacteria staining	251762.1606	25 g
DAPI	Chromosomes, *Chlamydia* Fluorescent dye	A1001,0010	10 mg
		A1001,0025	25 mg
		A1001,0100	100 mg
		A1001,0500	500 mg
		A1001,9001	1 g
		A1001,9010	10 g
Eosin Yellowish (C.I. 45380) CE	Vital staining and plasma staining	251299.1606	25 g
		251299.1608	100 g
Erythrosin B (C.I. 45430)	Proteins, antigen-antibody reactions fluorescent dye	253982.1606	25 g
Fuchsin Acidic Disodium Salt (C.I. 42685)	Blood smear staining	251331.1605	10 g
Fuchsin Basic (C.I. 42510)	Nucleus and Koch's bacilli staining	251332.1606	25 g
		251332.1608	100 g
		251332.1610	500 g
Gentian Violet (C.I. 42535+42555)	Bacteria staining according to Gram	251765.1606	25 g
		251765.1609	250 g
Giemsa stain	Blood smears and protozoos staining	251337.1608	100 g
Hematoxylin 1-hydrate (C.I. 75290)	Vaginal smear staining	251344.1604	5 g
		251344.1606	25 g
Indigo Carmine (C.I. 73015)	Nucleus and glycogen staining	251246.1605	10 g
Malachite Oxalate Green (C.I. 42000)	Cytoplasm of vegetal cells staining	251761.1606	25 g
		251761.1608	100 g

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Product name	Application	Code	Package
Methylene Blue (C.I. 52015) CE	Bacteriology and cytology	251170.1606	25 g
		251170.1608	100 g
		251170.1609	250 g
Methyl Green (C.I. 42585)	Bacteria staining	251704.1604	5 g
Orcein	Chromosome staining	251324.1604	5 g
		251324.1606	25 g
Ponceau S (C.I. 27195)	For electrophoresis	A1405,0010	10 g
Resazurin Sodium Salt	For sterility tests	121591.1604	5 g
Rhodamine B (C.I. 45170)	Fluorescent staining	251604.1608	100 g
Rose Bengal (C.I. 45440)		A4439,0050	50 g
Safranine O (C.I. 50240) CE	Nucleus staining, according to Gram	251622.1605	10 g
		251622.1607	50 g
Sudan III (C.I. 26100)	Fatty acids and neutral fats staining in faeces	251731.1606	25 g
Toluidine Blue O (C.I. 52040)	Nucleus and mucosae staining	251176.1604	5 g
Trypan Blue (C.I. 23850)	Vital staining and connective tissue staining	A0668,0025	25 g
Wright's Eosin-Methylene Blue dye	Blood smear staining	251767.1606	25 g

Dyes in solution

Product name	Application	Code	Package
Blue for fast staining (Panoptic No. 3) Composition: Azur B ..... 2 g Buffer solution pH 7 s.q.m. ..... 1000 ml	Blood smear staining or medullary smear staining	253998.1210	500 ml
		253998.1212	2.5 L
Carazzi's Hematoxylin solution CE Composition: Hematoxylin ..... 0.1 g Aluminium Potassium Sulfate 12-hydrate..... 5 g Sodium Iodate ..... 0.02 g Glycerol ..... 20 ml Water s.q.m. ..... 100 ml	Solution for Hematoxylin-Eosin staining, in human and gynaecological samples	255298.1610	500 ml
		255298.1612	2.5 L
Eosin for fast staining (Panoptic No. 2) Composition: Eosin Yellowish ..... 0.8 g Buffer solution pH 7 s.q.m. ..... 1000 ml	Blood smear staining or medullary smear staining	253999.1210	500 ml
		253999.1212	2.5 L
Eosin Yellowish solution 2% Eosin Yellowish ..... 20 g Water s.q.m. ..... 1000 ml	Solution for Hematoxylin-Eosin staining	173149.1207	50 ml

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Reagents for Hospitals

Staining

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Product name	Application	Code	Package
Eosin Yellowish alcoholic solution 1% CE Composition: Eosin Yellowish ..... 10 g Acetic Acid glacial ..... 1 ml Water ..... 50 ml Ethanol 96% ..... 1000 ml	Solution for Hematoxylin-Eosin staining, in human and gynecological samples	256879.1210	500 ml
		256879.1612	2.5 L
Eosin Yellowish hydroalcoholic solution 1% CE Composition: Eosin Yellowish ..... 1 g Ethanol absolute ..... 10 ml Water..... 90 ml	Solution for Hematoxylin-Eosin staining, in human and gynecological samples	251301.1609	250 ml
		251301.1611	1000 ml
Eosin Yellowish hydroalcoholic solution 2% Eosin Yellowish ..... 2 g Ethanol 96 % ..... 50 ml Water ..... 50 ml	Solution for Hematoxylin-Eosin staining.	176161.1207	50 ml
Eosin-Methylene Blue solution according to Wright Composition: Wright's Eosin-Methylene Blue dye ..... 0.25 g Methanol s.q.m. .....100 ml	Differential blood smear staining.	251768.1610	500 ml
Fixing for fast staining (Panoptic No. 1) Composition: Crystal Violet ..... 2 mg Methanol s.q.m. ..... 1000 ml	Blood smear staining or medullary smear staining	254101.1210	500 ml
		254101.1212	2.5 L
Gentian Violet Phenique Composition: Gentian Violet ..... 0.67 g Ethanol absolute ..... 11.7 ml Phenol ..... 2.05 g Water ..... 100 ml	Bacteria staining according to Gram-Nicolle	251766.1609	250 ml
Giemsa's Azur-Eosin-Methylene Blue solution (slow) CE Composition: Azur-Eosin-Methylene Blue dye according to Giemsa ..... 0.5 g Methanol ..... 50 ml Glycerol ..... 50 ml	Blood smears and protozoos staining	251338.1608	100 ml
		251338.1610	500 ml
		251338.1611	1000 ml
		251338.1612	2.5 L
Gram-Hucker's Crystal Violet Oxalate solution CE Composition: Crystal Violet ..... 20 g Ammonium Oxalate ..... 8 g Ethanol ..... 200 ml Water ..... 800 ml	Bacteria staining according to Gram-Hucker	252532.1609	250 ml
		252532.1611	1000 ml
Gram-Hucker's Safranine O solution Composition: Safranine O ..... 0.25 g Ethanol absolute ..... 10 ml Water s.q.m. ..... 100 ml	Bacteria staining according to Gram-Hucker	252531.1209	250 ml
		252531.1211	1000 ml

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Product name	Application	Code	Package
Harris Hematoxylin solution CE Composition: Hematoxylin ..... 500 mg Mercury(II) Oxide yellow ..... 250 mg Aluminium Potassium Sulfate 12-hydrate .....10 g Ethanol 96% ..... 16 ml Water ..... 88 ml	Solution for Hematoxylin-Eosin staining, in human and gynaecological samples	253949.1610	500 ml
		253949.1611	1000 ml
		253949.1612	2.5 L
Harris Hematoxylin modified solution CE	Solution for Hematoxylin-Eosin staining, in human and gynaecological samples, mercury free	256991.1610	500 ml
		256991.1612	2.5 L
Kühne's Methylene Blue Phenicated solution Composition: Methylene Blue ..... 9 g Ethanol absolute ..... 90 ml Phenol ..... 26 ml Water ..... 1000 ml	Bacteria staining according to Ziehl-Neelsen, contrast dye	251172.1209	250 ml
		251172.1211	1000 ml
Lactophenol Blue solution Composition: Methyl Blue ..... 50 mg Phenol ..... 25 g L(+)-Lactic Acid ..... 20.8 ml Glycerol ..... 39.5 ml Water s.q.m. ..... 100 ml	Staining of fungi	253724.1608	100 ml
Löffler's Methylene Blue Alkali solution Composition: Methylene Blue ..... 0.365 g Potassium Hydroxide 0.1 mol/l ..... 1.62 ml Ethanol absolute ..... 9.1 ml Water..... 91 ml		251171.1208	100 ml
		251171.1209	250 ml
Mayer's Hematoxylin solution Composition: Hematoxylin ..... 1.0 g Aluminium Potassium Sulfate 12-hydrate ..... 50 g Sodium Iodate ..... 0.2 g Chloral hydrate ..... 50 g Citric Acid anhydrous ..... 1 g Water ..... 1000 ml	Nuclear staining for cytology	254766.1610	500 ml
		254766.1611	1000 ml
May Grünwald's Eosin-Methylene Blue solution Composition: May Grünwald's Eosin-Methylene Blue dye ..... 0.25 g Methanol s.q.m. ..... 100 ml	Blood smear staining	251416.1610	500 ml
		251416.1611	1000 ml
		251416.1612	2.5 L
Methyl Red solution 0.1% Composition: Methyl Red ..... 1 g Ethanol 70% ..... 1000 ml	Indicator dye	281618.1208	100 ml

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Reagents for Hospitals

Staining

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Product name	Application	Code	Package
Orcein solution A hydroacetic-hydrochloric solution Composition: Orcein ..... 2.0 g Acetic Acid ..... 45.8 ml Hydrochloric Acid 1 mol/l .... 8.3 ml Water ..... 45.8 ml	Chromosome staining	251993.1208	100 ml
Orcein solution B hydroacetic solution Composition: Orcein ..... 2.0 g Acetic Acid ..... 55 ml Water ..... 55 ml	Chromosome staining	251994.1208	100 ml
Papanicolaou's Solution EA 50 CE Composition: Light Green SF yellowish ..... 58 mg Bismarck Brown R ..... 40 mg Eosin Yellowish ..... 0.225 g Phosphotungstic Acid hydrate ..... 0.17 g Acetic Acid glacial ..... 0.1 g Water ..... 7 ml Methanol .... 93 ml	For cytology, cytoplasm staining	253594.1610	500 ml
		253594.1612	2.5 L
Papanicolaou's Solution OG 6 CE Composition: Orange G ..... 0.2 g Phosphotungstic Acid hydrate ..... 0.02 g Ethanol absolute ..... 88.5 ml Water ..... 11.5 ml	For cytology, cytoplasm staining of mature and keratinized cells	253892.1610	500 ml
		253892.1611	1000 ml
		253892.1612	2.5 L
Schiff's Reagent PAS staining Composition: Pararosaniline ..... 0.1 g Sodium Sulfite solution 10% ..... 10 ml Hydrochloric Acid 35% ..... 3 ml Water ..... 50 ml	For detection of carbohydrate	251588.1609	250 ml
		251588.1611	1000 ml
Weigert's Hematoxylin solution A Composition: Hematoxylin ..... 1 g Ethanol absolute ..... 1 00 ml	Nucleus staining	253453.1210	500 ml
Weigert's Hematoxylin solution B Composition: Iron(III) Chloride 30% aqueous solution .... 4 ml Hydrochloric Acid 35% ..... 1 ml Water s.q.m. ..... 100 ml	Nucleus staining	253454.1210	500 ml
Ziehl-Neelsen Carbol-Fuchsin Basic solution CE Composition: Basic Fuchsin ..... 0.74 g Phenol ..... 5 ml Ethanol absolute ..... 10 ml Water s.q.m. ..... 100 ml	Bacteria staining according to Gram-Nicolle and Ziehl-Neelsen, contrast dye	251333.1609	250 ml
		251333.1611	1000 ml

Mounting

Mounting and immersion media

Mounting media interposes between the slide and the coverslip to avoid the contact of the preparation with the environmental air to preserve the sample.

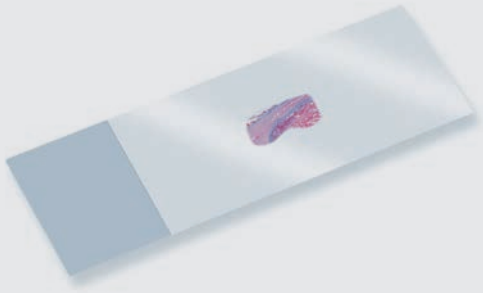
Immersion media are liquids that are frequently natural oils and which have a defined refractive index. It is important that the **refractive index** (nD) is about 1.5, the figure for glass. This enables a homogeneous oil immersion to be achieved.

Key Factors:

1. Index refraction Mounting medium ≃ Index refraction Clearing agent
2. Chemical compatibility Clearing agent – Mounting medium

Once the preparations have been cleared, they must be **definitively mounted**. Mounting agents can be aqueous and non-aqueous; the type used depends on the protocol involved.

The mounting media should be chosen being the refractive index as close as possible to that of the liquid impregnating the cut tissue.



Mounting media

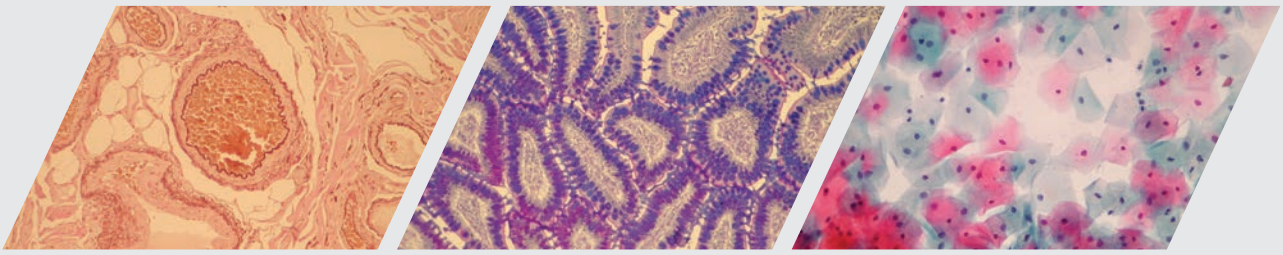
Product name	Application	Refractive Index (20 ºC) n^{20}_{D}	Code	Package
Canada Balsam CE	Natural vegetable resin for mounting	1.520 - 1.523	251179.1608	100 ml
			251179.1611	1000 ml
DPX, mounting medium fast (toluene base)	Non-aqueous mounting medium	1.515 - 1.525	255254.1608	100 ml
			255254.1610	500 ml
Eukitt®, mounting medium	Adhesive and specimen preservative that can be used manually and in automated cover slipping equipment, fast drying	1.493 - 1.496	253681.0008	100 ml
			253681.0009	250 ml
			253681.0010	500 ml
Histofluid®, mounting medium	Histofluid is a transparent acrylic adhesive dissolved in xylene that hardens quickly, it does not fluoresce	1.493 - 1.496	255598.0010	500 ml
Mounting Medium for substitutes of xylene	For mounting samples cleared with substitutes of xylene		255811.0008	100 ml

Immersion media

Product name	Application	Refractive Index (20 ºC) n^{20}_{D}	Code	Package
Cedarwood Oil	Immersion oil for microscopy	1.496 - 1.516	A6586,0100	100 ml
Immersion Oil CE	Immersion oil for microscopy	1.477 - 1.481	251002.1207	50 ml
			251002.1208	100 ml
Immersion Oil purified	Immersion oil for microscopy	1.518 - 1.525	254561.1208	100 ml

Reagents for Histology

Histology is the study of the cellular organization of body tissues and organs. The **light microscope** is the tool used most widely for clinical applications of histology. However, the advent of the **electron microscope** greatly extended the detail at which subcellular structure can be studied. Thus, histology now embraces the study of the structures of both **tissue and cells,** and the **relationship between these structures and physiological function.**



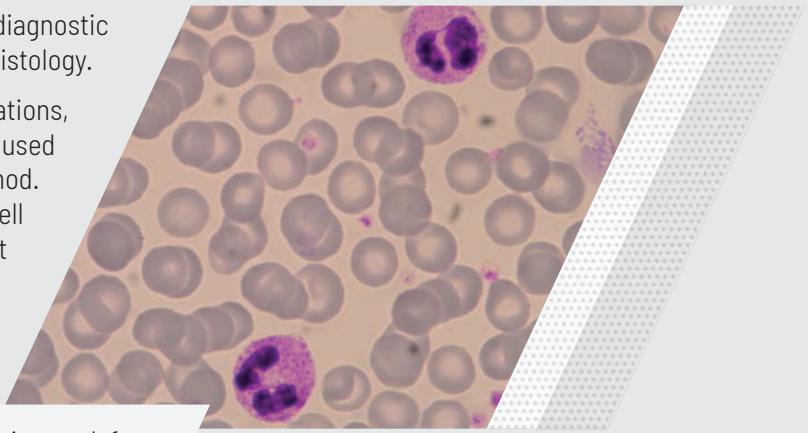
Many **staining techniques** were initially developed empirically to analyze **sections of tissue**. Staining and recognition of cell nuclei, cytoplasm and intracellular and extracellular components became possible thanks to the development of increasingly specific staining mixtures.

Classic techniques are still adequate in most cases of diagnoses. In few cases nevertheless, when the diagnosis can not be considered trustable, additional methods should be used. Later on **differential staining and visualization techniques** were developed. These allowed to evaluate the morphological criteria and the additional functional properties, which makes the diagnosis more reliable. These techniques include histochemical staining, immunohistochemical methods, DNA hybridization, fluorescent in situ hybridization, PCR, flow cytometry, etc.

Giemsa stain

Giemsa stain is frequently used for diagnostic purposes in the areas of hematology and histology.

In histology and clinic-cytological applications, Giemsa's staining without additional dyes is used as an extended overview staining method. In this method, the color of the various cell components is influenced by pretreatment of the specimen material. Here, cell nuclei appear in various blue shades.

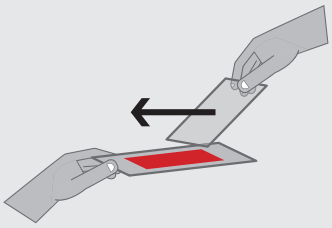


Giemsa stain is used in cytogenetics and for the histopathological diagnosis of malaria and other parasites.

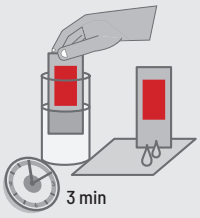
Giemsa stain

Product name	Application	Code	Package
Giemsa's Azur-Eosin-Methylene Blue solution (slow) Composition: Azur-Eosin-Methylene Blue dye according to Giemsa ..... 0.5 g Methanol ..... 50 ml Glycerol ..... 50 ml CE	Diagnosis of malaria and other parasites	251338.1608	100 ml
		251338.1610	500 ml
		251338.1611	1000 ml
		251338.1612	2.5 L

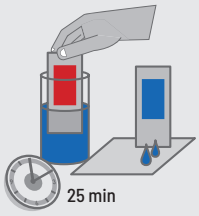
Giemsa staining procedure



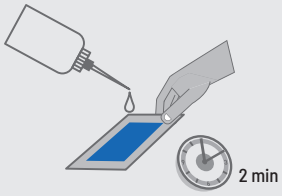
1. Once the sample has been extended on a slide, let it air dry (1-2 h approx.).



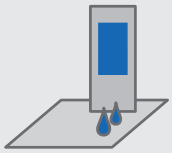
2. Fix the slide with methanol for 3 min. Drain and let it air dry.



3. Stain with Giemsa's Azur-Eosin-Methylene Blue solution diluted with Buffer solution, pH 7.2 (1:10) for 25 min.



4. Wash with Buffer solution, pH 7.2 for 2 min.



5. Let it air dry in a vertical position.

6. Observe under a microscope.

Results

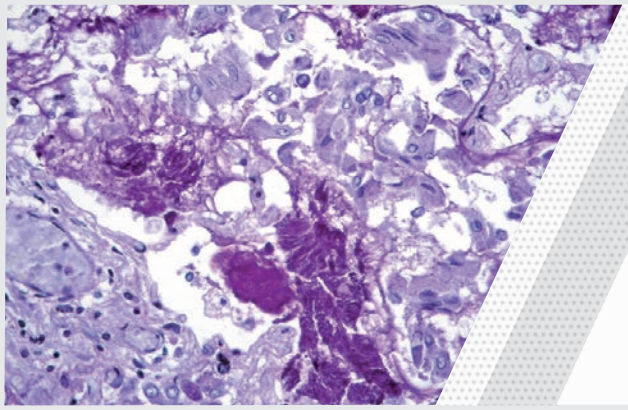
Erythrocytes	Salmon pink
Platelets	Violet

Type of leukocytes	Nucleus	Cytoplasm	Granules
Neutrophils	Red - violet	-	Violet
Eosinophils	Red - violet	-	Red - brown
Basophils	Red - violet	-	Dark violet to black
Monocytes	Red - violet	Blue - gray	-
Lymphocytes	Violet	Blue	-

Reagents for Hospitals

PAS Staining

Periodic Acid-Schiff (PAS) is a staining method used to **detect polysaccharides** in formalin-fixed and paraffin embedded tissue sections.



PAS staining can be used to assist in the diagnosis of several medical conditions as Glycogen storage disease (versus other storage disorders), Adenocarcinomas, which often secrete neutral mucins, Paget disease of the breast, etc. The PAS Kit consists of all the reagents involved in this staining.

It is one of the most commonly used staining in histology for glycogen and mucosubstances and is used to evidence the presence of aldehyde groups formed by prior oxidation of carbohydrates.

Further staining with Alcian blue allows to differentiate neutral and acidic mucopolysaccharides.

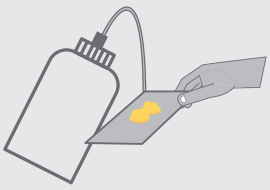
CE IVD

Main advantages

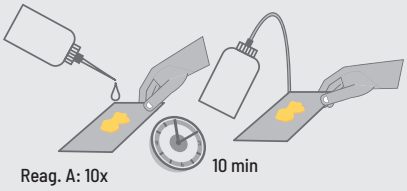
- All reagents are ready for use.
- Supplied in easy-to-use 30 ml dropper bottles.
- Optimal staining of the sample.
- Sufficient quantity to perform up to 100 tests.
- No additional equipment required.
- Standard procedure included in each box.
- The PAS Kit is stable for 10 months. Store at between +2 and +8ºC.

Product name	Application	Code	Package
PAS Kit CE Composition: Reagent A: Periodic Acid ..... 30 ml Reagent B: Schiff reagent ..... 30 ml Reagent C: Potassium Metabisulfite solution ..... 30 ml Reagent D: Fixing Solution ..... 30 ml Reagent E: Mayer's Hematoxylin ..... 30 ml Sufficient for 100 tests.	To detect polysaccharides in tissues	256676.0922	1 Kit
Alcian Blue 8 GX (C.I. 74240)	For carbohydrates differentation	254584.1604	5 g
		254584.1606	25 g

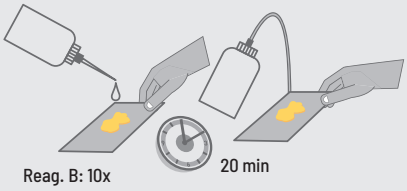
PAS Staining procedure



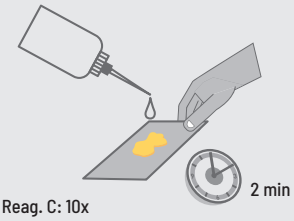
1. Once deparaffined and rehydrated, rinse the specimens with distilled water.



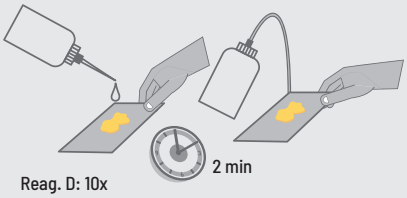
2. Add 10 drops of Reagent A to the section. Allow to react for 10 minutes.
Wash with distilled water.



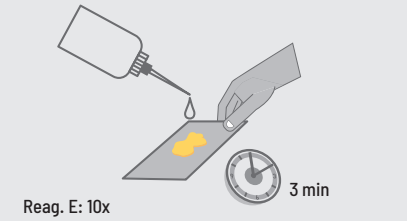
3. Add 10 drops of Reagent B to the section. Allow to react for 20 minutes. Wash with distilled water.



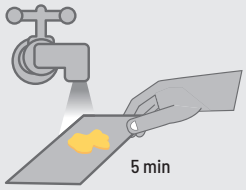
4. Add 10 drops of Reagent C to the section. Allow to react for 2 minutes. Drain the slide.



5. Without washing, add 10 drops of Reagent D to the section. Allow to react for 2 minutes. Wash with distilled water.



6. Add 10 drops of Reagent E to the section. Allow to react for 3 minutes.



7. Rinse in running water for 5 minutes.

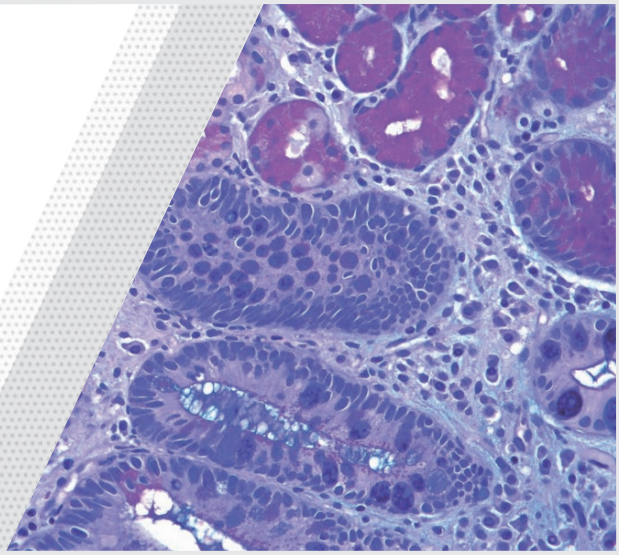
8. Dehydrate using increasing alcohol concentrations, rinse with xylene, mount and observe under the microscope.

Results
Nucleus: Blue
PAS-positive substances → Red to purple

- simple polysaccharides (glycogen)
- neutral mucopolysaccharides
- mucoproteins (mucines)
- glycoproteins
- basement membrane
- glycolipids

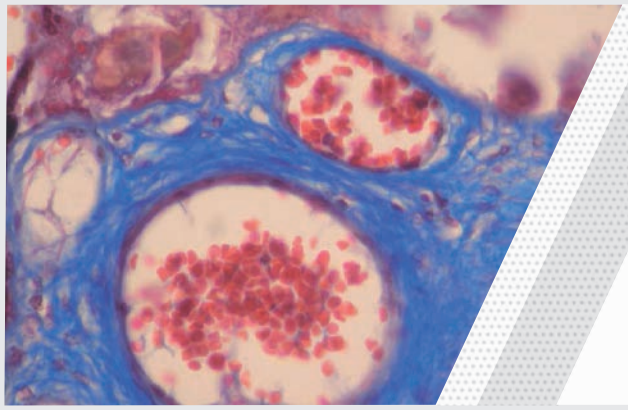
Alcian-PAS staining:

- MPSA (Acidic Mucopolysaccharides) → Blue
- MPSN (Neutral Mucopolysaccharides) and glycoproteins → Intense red



Masson's Trichrome staining

Masson Trichrome Kit is indicated for connective tissue staining. It colors gametes, nuclei, neurofibres, neuroglia, collagen and keratin.



Masson's Trichrome kit is indicated for staining connective tissue. **It stains gametes, nuclei, nerve fibres, neuroglias, collagen, keratin and intracellular fibres.** It can also be used to obtain a negative image of the Golgi apparatus.

Collagen fibres are the most common elements found in connective tissue. They play a basic support role and are synthesized by numerous cell elements in the organism, including fibroblasts.

Main advantages

- All reagents used during staining are ready for use
- Supplied in easy-to-use 30 ml dropper bottles.
- Optimal sample staining.
- Sufficient quantity to perform up to 100 tests.
- No additional equipment required.
- The kit is stable for 10 months. Store the product at between +15 and + 25ºC.

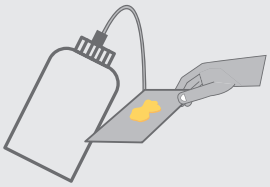
CE IVD

Masson's trichrome stain with aniline blue contains four different dyes:

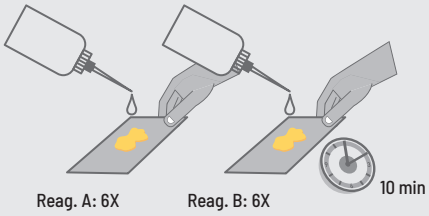
- Weigert's iron hematoxylin for the nucleus.
- Picric acid for the erythrocytes.
- A mixture of acid dyes for the cytoplasm.
- Aniline blue for the connective tissue.

Product name	Application	Code	Package
Masson's Trichrome kit with aniline blue CE Composition: Reagent A – Hematoxylin sol. B (Weigert) ..... 30 ml Reagent B – Hematoxylin sol. A (Weigert) ..... 30 ml Reagent C – Picric acid alcoholic sol..... 30 ml Reagent D – Biebrich Scarlet sol ..... 30 ml Reagent E – Phosphomolybdic acid sol ..... 30 ml Reagent F – Aniline blue sol ..... 30 ml Sufficient for 100 tests	Indicated for connective tissue staining	256692.0922	1 Kit

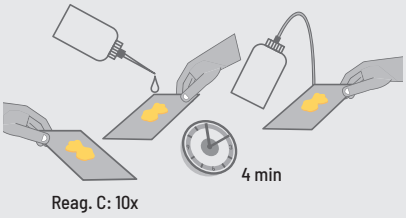
Masson's staining procedure



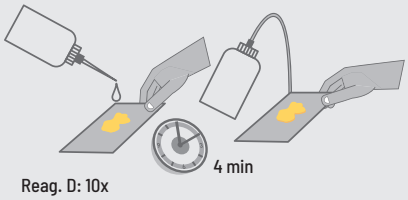
1. Deparaffin and hydrate the histological section until distilled water is achieved.



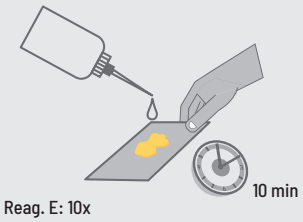
2. Add 6 drops of Reagent A to the preparation. Add 6 drops of Reagent B. Allow to react for 10 minutes.



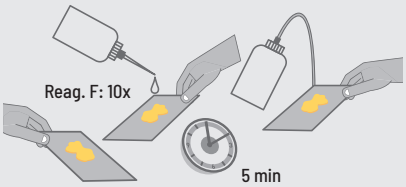
3. Without washing, drain the preparation and add 10 drops of Reagent C. Allow to react for 4 minutes. Wash rapidly (3-4 seconds) with distilled water.



4. Add 10 drops of Reagent D. Allow to react for 4 minutes. Wash with distilled water.



5. Add 10 drops of Reagent E. Allow to react for 10 minutes.



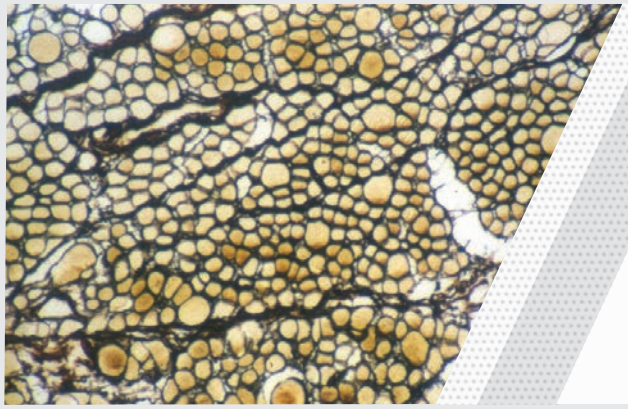
6. Without washing, drain the preparation and add 10 drops of Reagent F. Allow to react for 5 minutes. Wash with distilled water.

7. Dehydrate using an increasing series of alcohols. Immerse in absolute alcohol for 1 minute. Rinse with xylene, mount and observe under the microscope.

Results

Nuclei and gamets	Black
Cytoplasm, keratin, muscle fibers, acidophilic granulations	Red
Collagen, mucus, basophilic pituitary granulations	Blue
Hypophysis delta cell granules	Blue-violet
Erythrocytes	Yellow

Reticulin fiber Staining Kit



Reticulin is a mesh of fine fibers which provide support to the tissues. The Reticulin Kit is used for visualizing the presence of reticulin by impregnation with a silver salt.

The tissue is first oxidized and sensitized with iron alum, which is replaced with a silver salt. The silver is then reduced with a formaldehyde solution, which shows up the metallic silver. Finally, the excess silver which has not been reduced is dissolved using a sodium thiosulphate solution.

If the process has been carried out correctly, the background of the preparation will be almost colorless and the reticulin fibers and nerve fibers will be stained brownish-black and the collagen will be yellow.

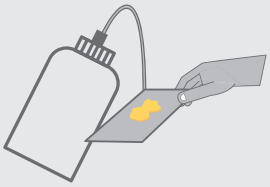
Product name	Application	Code	Package
Reticulin Kit CE Composition: Reagent A – $KMnO_4$ solution 25 ml Reagent B – Acid solution 25 ml Reagent C – $C_2H_2O_4$ solution 25 ml Reagent D – $NH_4Fe(SO_4)_2$ solution 25 ml Reagent E – $AgNO_3/NH_4OH$ solution 25 ml Reagent F – HCHO solution 25 ml Reagent G – $Na_2S_2O_3$ solution 25 ml Sufficient for 50 tests	For visualizing the presence of reticulin in tissues	255115.0922	1 Kit

Main advantages

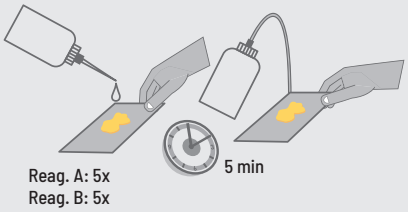
- All reagents required for staining are ready for use.
- Provided in convenient, easy-to-use dropper bottles.
- Optimal sample staining.
- Quantity sufficient for 50 tests.
- No need for extra equipment.
- The Reticulin Kit is stable for 1 year.
- For in vitro diagnostic use only.
- Store between +2 and +8º C.

CE IVD

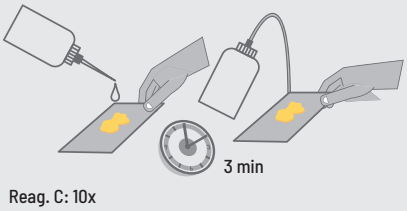
Reticulin fiber staining procedure



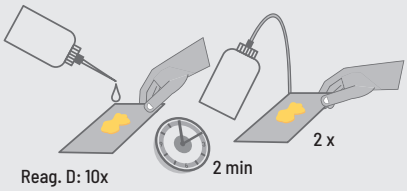
1. Hydrate the section to distilled water.



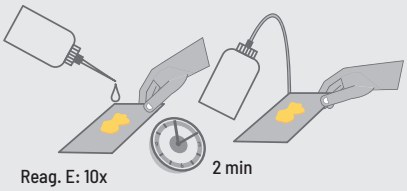
2. Put 5 drops of Reagent A on the section and add 5 drops of Reagent B: let it work for 5 minutes. Rinse the slide in distilled water.



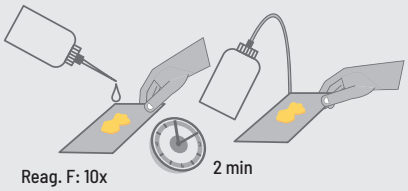
3. Put on the section 10 drops of Reagent C, let it work for 3 minutes and rinse in distilled water.



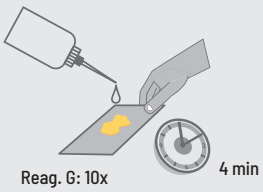
4. Put on the section 10 drops of Reagent D, let it work for 2 minutes. Rinse twice in distilled water.



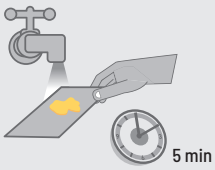
5. Impregnate the section with 10 drops of Reagent E, let it work for 2 minutes and rinse in distilled water.



6. Develop putting on the section 10 drops of Reagent F, let it work for 2 minutes. Rinse in distilled water.



7. Put on the section 10 drops of Reagent G, let it work for 4 minutes.



8. Wash in running tap water for 5 minutes.

9. Dehydrate on the ascending scale of alcohol, clear in xylene and mount.

Results

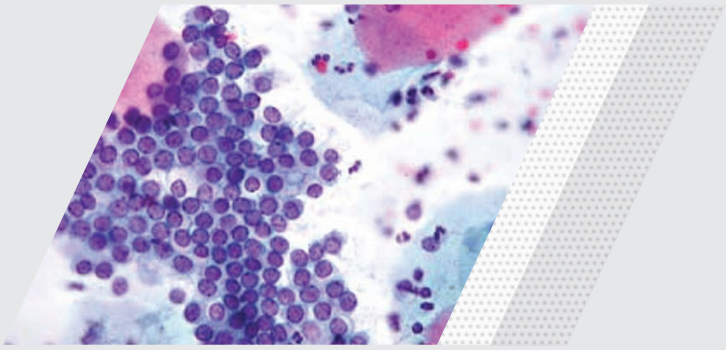
Reticulin and nervous fibers	Black
Connective tissue	Brown
Collagen	Yellow

Reagents for Cytology

Cytology is a technique used to differentiate tumors from other degenerative or inflammatory diseases.

The advantages of the cytologic method:

1. Samples easy to obtain for analysis
2. Relatively easy to process the samples
3. Highly specific and precise



These advantages that make cytology suitable for screening, have already led to a very important reduction in the incidence of cervical cancer.

The degree of acceptance of gynecological cytology has been achieved mainly thanks to the work done during the first half of the 20th century by Dr. George N. Papanicolaou.

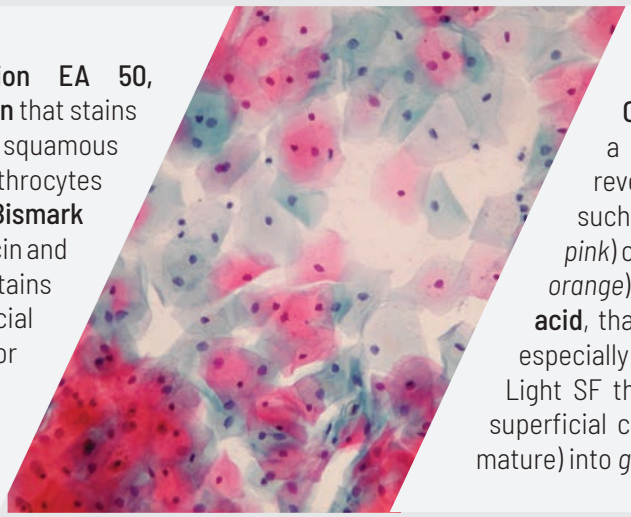
Papanicolaou Stain

Early detection of cervical or vaginal cancer.

This technique involves the use of three different solutions: Hematoxylin, Papanicolaou OG solution and Papanicolaou solution EA.

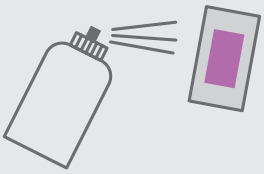
Hematoxylin is the chosen nuclear staining, basically allows to reveal the nuclei of the cells present in the sample. **Harris Hematoxylin** is typically used.

Papanicolaou's Solution EA 50, contains **Yellowish Eosin** that stains cytoplasm of mature squamous cells, hair cells and erythrocytes into *pink-orange* and **Bismark Brown R** that stains mucin and **light Green SF** that stains squamous non-superficial cells (immature or partially mature) into *greenish-blue.*

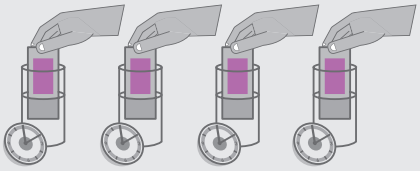


Papanicolaou's Solution OG 6, contains **Orange G**, a synthetic acid dye that reveals basic compounds such as prekeratine (that stains *pink*) or keratin (that stains *bright orange*) and **Phosphotungstic acid**, that has a mordant function, especially important for Green Light SF that stains squamous non-superficial cells (immature or partially mature) into *greenish-blue*.

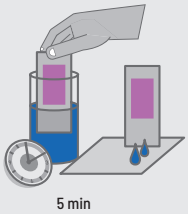
Papanicolaou Staining procedure



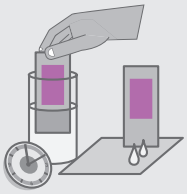
1. Fix the sample with spray.



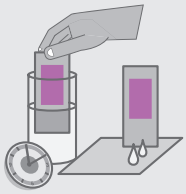
2. Submerge successively in alcohol 80%, alcohol 70%, alcohol 50% and water, 1 minute in each liquid.



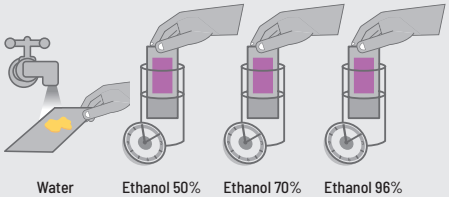
3. Stain with Harris Hematoxylin solution for approximately 5 minutes.



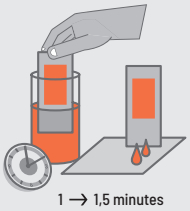
4. Immerse in water 6 times for 1 second.



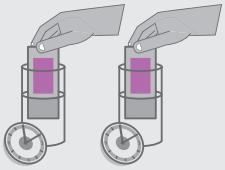
5. Submerge in 0.5% Hydrochloric Acid, 8 times for 1 second.



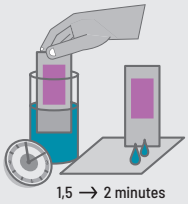
6. Rinse with tap water for 5 minutes, and pass the sample through successive grade alcohols, 50%, 70%, 80% and 96% for 30 seconds in each of them.



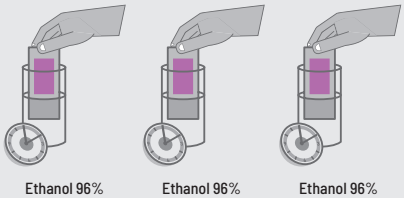
7. Stain with Papanicolaou OG 6 for 1 to 1.5 minutes.



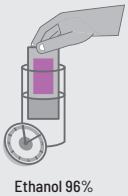
8. Wash the excess dye in two 96% Ethanol baths by immersing the preparation 2 times in each of 3 to 4 seconds.



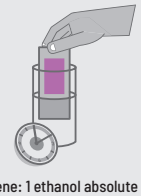
9. Stain with Pap Smear or EA 50 for 1.5 to 2 minutes.



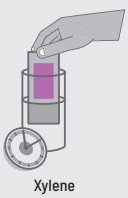
10. Wash in 3 different containers of Ethanol 96% v/v by immersing the preparation 2 times of 3 to 4 seconds in each of them.



11. Wash in absolute ethanol for 30 seconds.



12. Immerse the preparation for 4 minutes in a 1: 1 bath of Xylene, mixture of isomers and absolute ethanol.



13. Rinse with Xylene, mixture of isomers by immersing the preparation for 3 minutes in a bath.

14. Mount with Mounting medium and observe under a microscope.

Reagents for Hospitals

Reagents for Papanicolaou Staining

Product name	Application	Code	Package
Ethanol 96% v/v CE	Fixing, dehydrating	251085.1212	2.5 L
		251085.1214	5 L
		251085.1315	10 L
Harris Hematoxylin solution CE Composition: Hematoxylin ..... 500 mg Mercury(II) Oxide yellow ..... 250 mg Aluminium Potassium Sulfate 12-hydrate .....10 g Ethanol 96% ..... 16 ml Water ..... 88 ml	Nuclear staining	253949.1610	500 ml
		253949.1611	1000 ml
		253949.1612	2.5 L
Histofix® Spray fixative CE Composition: Polyethylene Glycol 6000 ..... 50 g Water ..... 75 ml Ethanol s.q.m. ..... 925 ml	Fixative for papanicolaou smears	256700.3408	6x100 ml
Papanicolaou's Solution EA 50 CE Composition: Light Green SF yellowish ..... 58 mg Bismarck Brown R ..... 40 mg Eosin Yellowish ..... 0.225 g Phosphotungstic Acid hydrate ..... 0.17 g Acetic Acid glacial ..... 0.1 g Water .....7 ml Methanol ..... 93 ml	Cytoplasm staining	253594.1610	500 ml
		253594.1611	1000 ml
		253594.1612	2.5 L
Papanicolaou's Solution OG 6 CE Composition: Orange G ..... 0.2 g Phosphotungstic Acid hydrate ..... 0.02 g Ethanol absolute ..... 88.5 ml Water ..... 11.5 ml	Cytoplasm staining of mature and keratinized cells	253892.1610	500 ml
		253892.1611	1000 ml
		253892.1612	2.5 L
Water for analysis, ACS	Cleaning, rinsing	131074.1211	1000 ml
		131074.1212	2.5 L
		131074.1214	5 L
		131074.1315	10 L

PanReac AppliChem
ITW Reagents

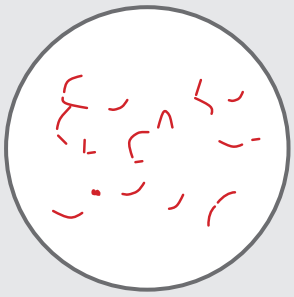
Reagents for Clinical Microbiology

Microbiology is an independent discipline within the scope of **clinical diagnosis** and **industrial quality control.** In order to make microorganisms suitable for microscopic analysis they have to be stained with suitable dyes. Gram-staining and the detection of mycobacteria are of particular importance. Bacterial staining, with the exception of supra-vital staining (e.g. fluorescent staining), is carried out on heat-fixed cells.

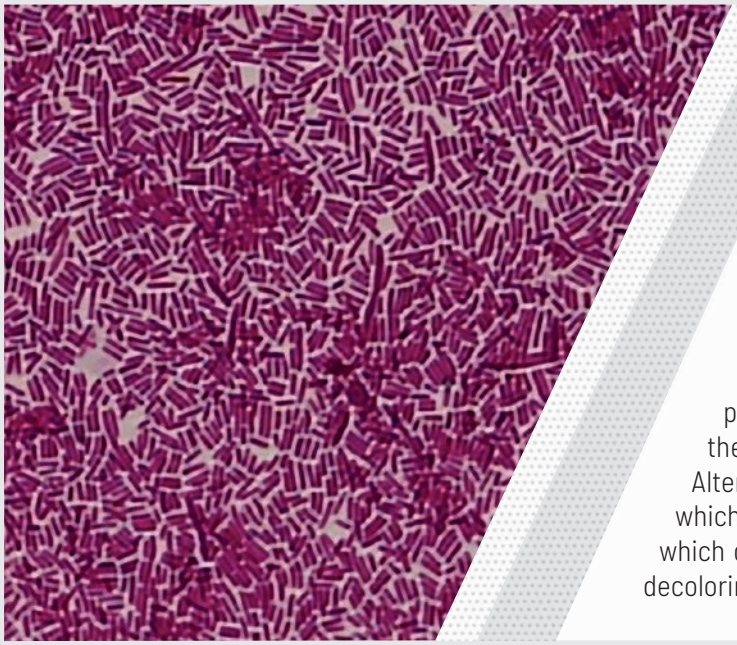
Gram Staining

For differentiation of gram positive and gram negative bacteria.

Gram positive bacteria

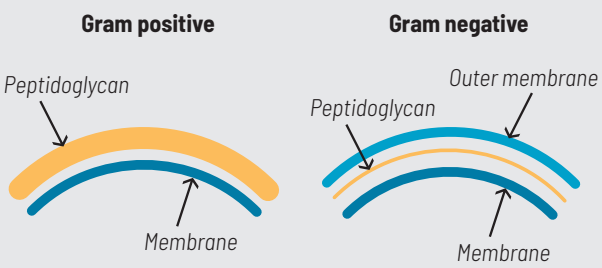


Gram negative bacteria



Gram staining is a common technique used to differentiate two large groups of bacteria based on their different cell wall constituents. The Gram stain procedure distinguishes between **Gram positive and Gram negative** groups by coloring these cells red or violet. **Gram positive bacteria stain violet** due to the presence of a thick layer of peptidoglycan in their cell walls, which retains the crystal violet these cells are stained with. Alternatively, **Gram negative bacteria stain red**, which is attributed to a thinner peptidoglycan wall, which does not retain the crystal violet during the decoloring process.

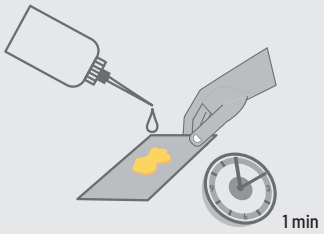
Gram–Hucker stain is the most widely used stain in microbiology to differentiate between Gram-positive and Gram-negative bacteria on the basis of their color retention.



Gram–Nicolle stain is a differential staining in which the Basic Carbolic Fuchsin is used as an alternative contrast dye to Safranin to reveal certain Gram-negative microorganisms which, although colored, do so very faintly.

Example Gram Positive: Bacillus, Listeria, Staphylococcus, Streptococcus, Enterococcus, Clostridium and Mycoplasma.
Example gram Negative: Cyanobacteria, spirochaetes, and green sulfur bacteria.

Gram staining procedure



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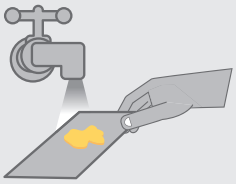

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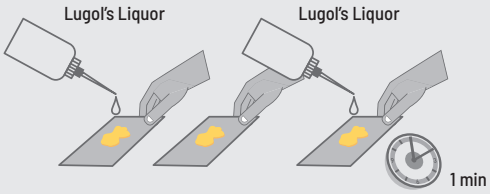

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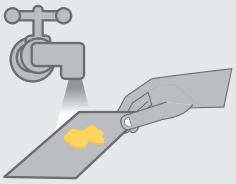

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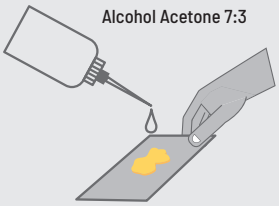

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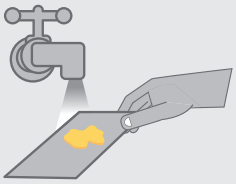

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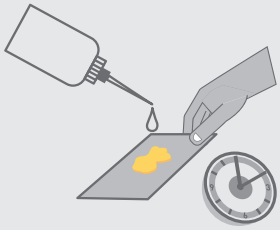

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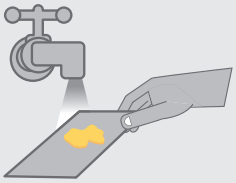

8.

9.

For Gram Hucker Procedure:
Step 1: Cover the preparation with Cristal Violet Oxalate Gram-Hucker solution for 1 minute.
Step 7: Cover the preparation with Safranine O solution according to Gram-Hucker for 1 minute.

For Gram Nicolle Procedure:
Step 1: Cover the preparation with the Carbolic Gentian Violet for 1 to 5 minutes.
Step 7: Coat with Carbolic-Fuchsin Basic solution according to Ziehl diluted for 30 seconds.

Results

Gram Hucker	Gram (+)	Blue violet
	Gram (-)	Red pink
Gram Nicolle	Gram (+)	Blue violet
	Gram (-)	Red

Gram Hucker Staining Kit

For differentation of gram positive and gram negative bacteria.

PanReac AppliChem offers all the reagents required for this staining, in kit format, with easy-to-use dropper bottles. The kit meets the CE marking requirements for in vitro diagnostic medical devices

Main advantages

- Easy-to-use 100 or 250 ml dropper.
- Easy, clean liquid dosing.
- Optimal bacterial staining.
- Supplied in a practical case with handle.

CE IVD

Product name	Code	Package
Gram-Hucker's Staining Kit (droppers) for clinical diagnosis CE The kit consists of: Alcohol-Acetone 7:3 – 1 x 250 mL Lugol's Liquor – 1 x 100 mL Gram-Hucker's Safranine O solution – 1 x 100 mL Gram-Hucker's Crystal Violet Oxalate solution – 1 x 100 mL 	256649.0922	1 Kit

Reagents for Gram Staining

Product name	Gram Hucker	Gram Nicolle	Code	Package
Alcohol-Acetone 7:3 CE	•	•	251803.1609	250 ml
			251803.1611	1000 ml
			251803.1612	2.5 L
Crystal Violet (C.I. 42555)	•		251762.1606	25 g
Gram-Hucker's Crystal Violet Oxalate solution CE Composition: Crystal Violet ..... 20 g Ammonium Oxalate ..... 8 g Ethanol ..... 200 ml Water..... 800 ml	•		252532.1609	250 ml
			252532.1611	1000 ml
Ethanol 96% v/v CE	•	•	251085.1212	2.5 L
			251085.1214	5 L
			251085.1315	10 L

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Reagents for Hospitals

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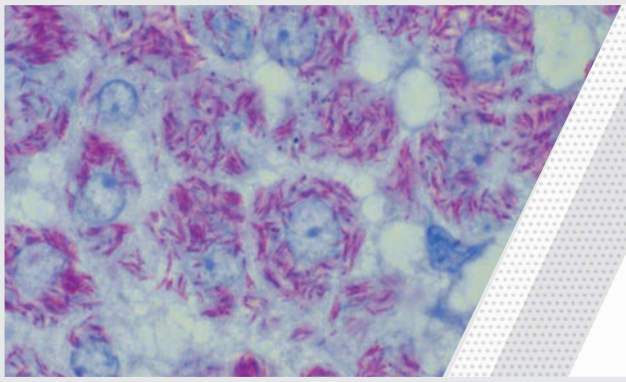
Product name	Gram Hucker	Gram Nicolle	Code	Package
Gentian Violet Phenique Composition: Gentian Violet ..... 0.67 g Phenol ..... 2.05 g Ethanol absolute ..... 11.7 ml Water ..... 100 ml		•	251766.1609	250 ml
Lugol's Liquor with 0.33 % of Iodine (diluted) CE Composition: Iodine ..... 0.333 g Potassium Iodide ..... 0.666 g Water s.q.m. ..... 100 ml	•	•	256977.1609	250 ml
Lugol's Liquor with 0.4 % of Iodine (diluted) Composition: Iodine ..... 0.4 g Potassium Iodide ..... 0.66 g Water s.q.m. ..... 100 ml	•	•	251774.1608 251774.1609 251774.1611	100 ml 250 ml 1000 ml
Lugol's Liquor with 5% of Iodine (concentrated) Composition: Iodine ..... 5 g Potassium Iodide ..... 10 g Water s.q.m. ..... 100 ml	•	•	257041.1608 257041.1610 257041.1611	100 ml 500 ml 1000 ml
Methanol (Reag. Ph. Eur.) for analysis, ACS, ISO	•	•	131091.1211 131091.1611 131091.1212 131091.1612 131091.1214	1000 ml 1000 ml 2.5 L 2.5 L 5 L
Safranine O (C.I. 50240) CE	•	•	251622.1605 251622.1607	10 g 50 g
Gram-Hucker's Safranine O solution CE Composition: Safranine O ..... 0.25 g Ethanol absolute ..... 10 ml Water s.q.m. ..... 100 ml	•		252531.1209 252531.1211	250 ml 1000 ml
Water for analysis, ACS	•	•	131074.1211 131074.1212 131074.1214 131074.1315	1000 ml 2.5 L 5 L 10 L
Ziehl-Neelsen Carbol-Fuchsin Basic solution CE Composition: Basic Fuchsin ..... 0.74 g Phenol ..... 5 ml Ethanol absolute ..... 10 ml Water s.q.m. ..... 100 ml		•	251333.1609 251333.1611	250 ml 1000 ml

Ziehl-Neelsen Stain - Acid fast bacilli staining



The Ziehl–Neelsen stain, also known as the acid-fast stain is a special bacteriological stain used to identify acid-fast organisms, mainly *Mycobacteria*. *Mycobacterium tuberculosis* is the most important of this group because it is responsible for tuberculosis.

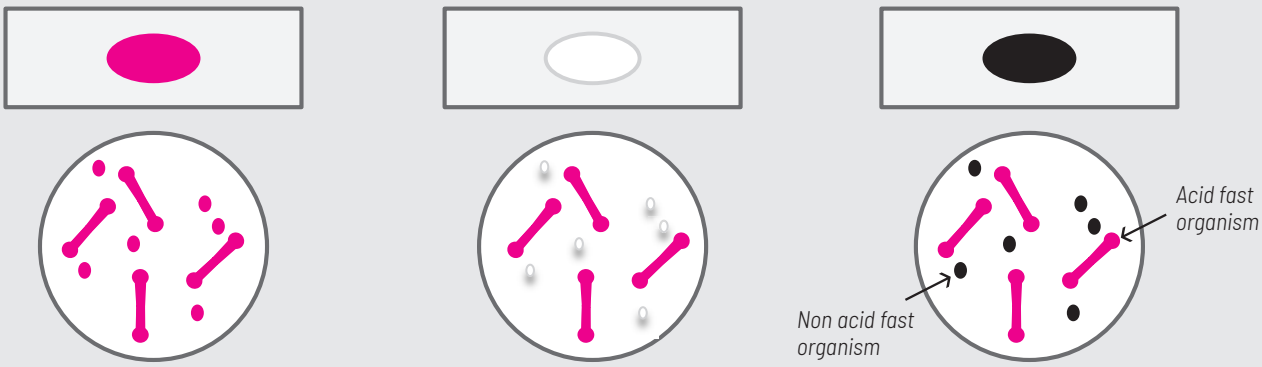
Ziehl-Neelsen staining procedure

1. Color with Ziehl-Neelsen Carbol-Fuchsin Basic solution according to Ziehl for 30 min at room temperature.

2. Decolor with 8: 2 alcohol-hydrochloric acid until the sections appear pale pink.

3. Contrast by immersing the foil in the solution of methylene blue diluted for 30 seconds.

4. Dehydrate rapidly with 96% Ethanol and Absolute Ethanol 2 changes each, rinse with 2 xylene changes, 2 minutes each.



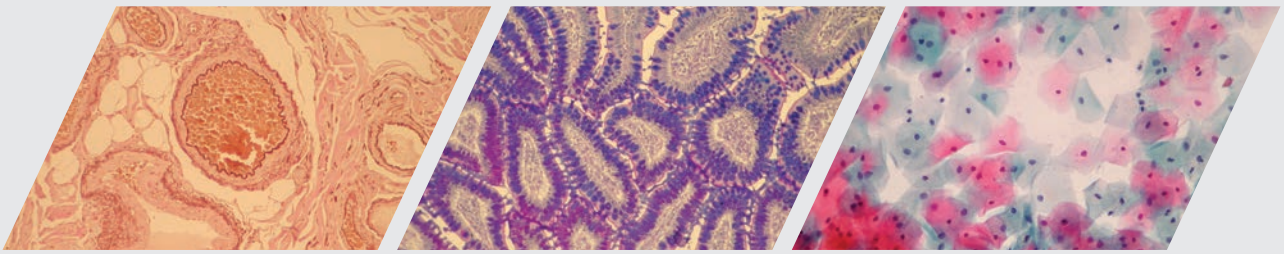
Results

Acid-fast bacilli	Red
Erythrocytes	Orange yellow
Other Tissue Elements	Blue

Reagents for Hospitals

Reagents for Ziehl-Neelsen Staining

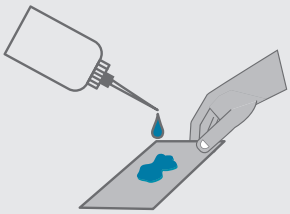
Product name	Application	Code	Package
Alcohol-Hydrochloric 8:2 CE Composition: Hydrochloric Acid 35% ..... 20 ml Ethanol absolute ..... 80 ml	Decoloring agent	251804.1210	500 ml
Alcohol-Hydrochloric (0.75 % HCl)	Decoloring agent	257097.1211	1000 ml
Kühne's Methylene Blue Phenicated solution Composition: Methylene Blue ..... 9 g Ethanol absolute ..... 90 ml Phenol ..... 26 ml Water s.q.m. ..... 1000 ml	Color reagent blue	251172.1209	250 ml
		251172.1211	1000 ml
Water for analysis, ACS	Cleaning, rinsing	131074.1211	1000 ml
		131074.1212	2.5 L
		131074.1214	5 L
		131074.1315	10 L
Ziehl-Neelsen Carbol-Fuchsin Basic solution Composition: Basic Fuchsin ..... 0.74 g Phenol ..... 5 ml Ethanol absolute ..... 10 ml Water s.q.m. ..... 100 ml	Color reagent red	251333.1609	250 ml
		251333.1611	1000 ml



Other staining solutions used for clinical microbiology

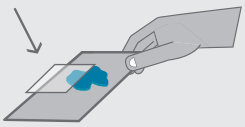
Product name	Application	Code	Package
Eosin-Methylene Blue solution according to Wright Composition: Wright's Eosin-Methylene Blue dye ..... 0.25 g Methanol s.q.m. ..... 100 ml	Staining of spirochetes	251768.1610	500 ml
Lactophenol Blue solution Composition: Methyl Blue ..... 50 mg Phenol ..... 25 g L(+)-Lactic Acid ..... 20.8 ml Glycerol ..... 39.5 ml Water s.q.m ..... 100 ml	Staining of fungi, the material is stained in a single step and fungi appear dark blue	253724.1608	100 ml
Löffler's Methylene Blue Alkali solution	General bacteriological control stainings of gonococcae, lactic acid bacteria and for visualization pole corpuscles of *pasteurella*	251171.1208	100 ml
		251171.1209	250 ml

Lactophenol Blue procedure



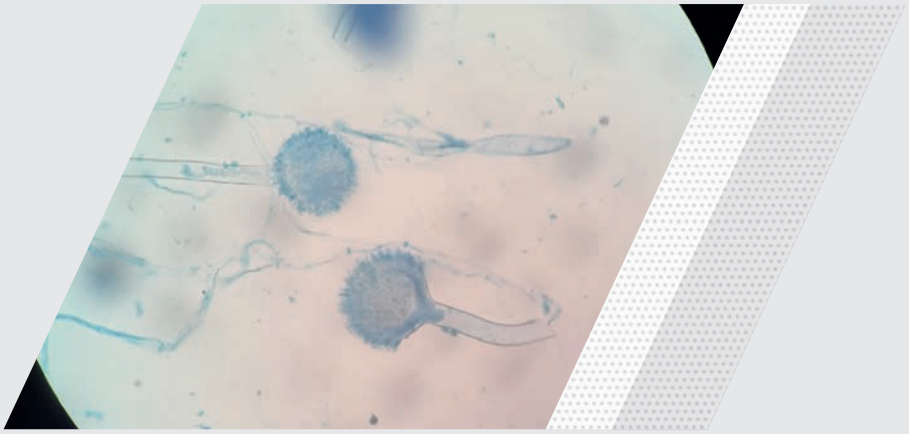
1. Place a drop of Lactophenol Blue solution in the center of a slide.

2. Remove a fragment of the fungus colony from the colony edge using a needle.



3. Place the fragment in the drop of stain. Apply a coverslip. Do not push down or tap the cover slip.

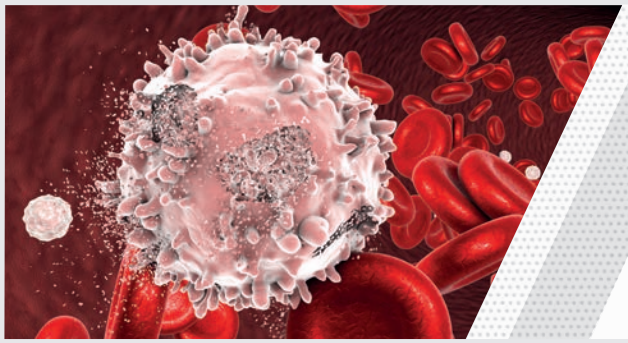
4. Examine the preparation under low and high magnification for the presence of characteristic mycelia and fruiting structures. Fungi appear dark blue. Diagnostics should be established only by authorized and qualified persons.



Reagents for Hospitals

Reagents for Hematology

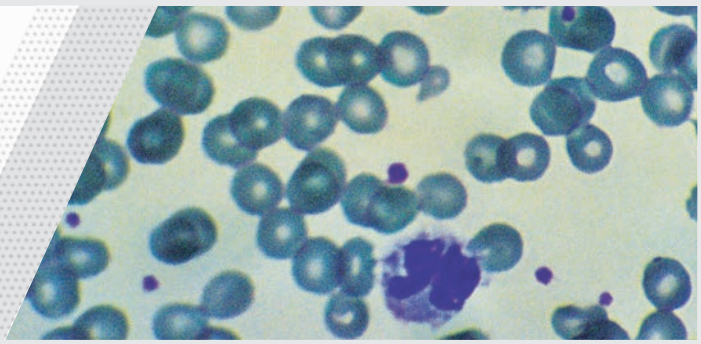
Pappenheim panoptic staining and staining according to Giemsa, Wright or Leishman have long been standard techniques in haematological diagnostic procedures. Previously, virtually all blood samples were analyzed using such staining methods. Nowadays, most of the samples are analyzed using semi-automatic or fully automatic hematological systems capable of determining all the necessary parameters for diagnosis. Pathological or suspicious blood and bone marrow smears are subjected to classical differential analysis using stains.



Haematological staining is a group of processes that lead to the coloring of the structures that make up the **blood cells.** The objective of this is to increase the contrast between these structures and their surrounding medium, therefore allowing the cells to be observed microscopically with greater ease.

Kit for Fast Staining in Haematology (Fast Panoptic)

Fast staining in haematology is used for the diagnosis and characterization of leukocytes. It allows **easy and fast staining.** The kit contains solutions for the fast staining of blood smears through **successive immersion** in each of them.



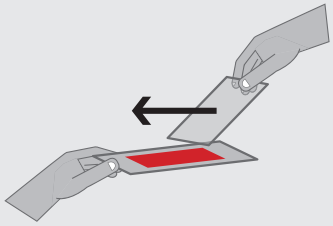
Compared to classic staining methods, where the dye is extended over the smear, this kit uses an immersion method, where the smear is submerged in the dye solution for a fixed period of time.

Results of a quality equal to classic staining methods (May Grünwald-Giemsa or Pappenheim) are obtained in only a few seconds.

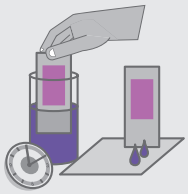
Main advantages

- Quick and easy staining of the cell structures.
- All the reagents prepared ready to use.
- Very good stability: the kit is stable for 3 years when stored between 15 ºC and 25 ºC.

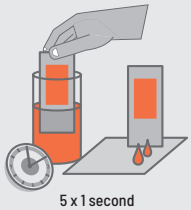
Kit for Fast Staining in Haematology (Fast Panoptic) procedure



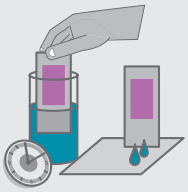
1. Once the sample has been extended on a slide, let it air dry.



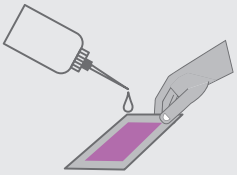
2. Submerge the slide in a receptacle with the Fixative for fast staining (Panoptic No. 1) 5 times for 1 second each time. Drain the excess liquid over filter paper.



3. Submerge in another receptacle with the Eosin for fast staining (Panoptic No. 2) 5 times for 1 second each time. Drain.



4. Submerge in another receptacle with the Blue for fast staining (Panoptic No. 3) 5 times for 1 second each time. Drain.



5. Rinse the smear with Buffer solution, pH 7.2.

6. Dry and examine under the microscope.

Note: Depending on the type and thickness of the sample, the immersion time in the dyes can be varied.

Results

Red blood cells	Grayish pink
Platelets	Violet blue
Blood parasites	Nucleus pale pink and cytoplasm blue

Type of leukocytes	Nucleus	Cytoplasm	Granules
Neutrophils	Pink - violet	-	Violet
Eosinophils	Pink - violet	-	Red - brown
Monocytes	Pink - violet	Blue - gray	-
Lymphocytes	Pink - violet	Blue	–

Reagents for Fast Staining in Hematology (Panoptic)

Product name	Application	Code	Package
Kit for Fast Staining in Haematology (Fast Panoptic) Comprised of: 253998 Blue for fast staining (Panoptic No. 3) (1x500 ml) 253999 Eosin for fast staining (Panoptic No. 2) (1x500 ml) 254101 Fixing for fast staining (Panoptic No. 1) (1x500 ml)	Characterization of leukocytes	254807.0922	P pack
Blue for fast staining (Panoptic No. 3) Composition: Azur B ..... 2 g Buffer solution pH 7 s.q.m. ..... 1000 ml	Color reagent blue	253998.1210	P 500 ml
		253998.1212	P 2.5 L
Eosin for fast staining (Panoptic No. 2) Composition: Eosin Yellowish ..... 0.8 g Buffer solution pH 7 s.q.m. ..... 1000 ml	Color reagent red	253999.1210	P 500 ml

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Reagents for Hospitals

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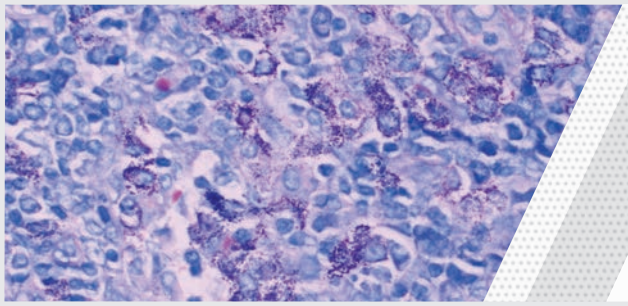
Product name	Application	Code	Package
Fixing for fast staining (Panoptic No. 1) Composition: Crystal Violet ..... 2 mg Methanol s.q.m. ..... 1000 ml	Fixing solution	254101.1210	P 500 ml
		254101.1212	P 2.5 L
Buffer Solution pH 7.2 Composition: Potassium di-Hydrogen Phosphate ..... 40 mg di-Sodium Hydrogen Phosphate 12-hydrate ..... 151 mg Water s.q.m. ..... 100 ml	Buffer solution	252164.1211	P 1000 ml

May Grünwald-Giemsa or Pappenheim stain

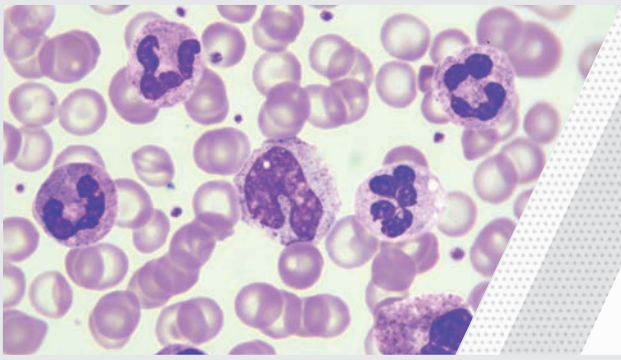


Alternatively, blood samples can be stained via the Pappenheim method using a **combination of May-Grünwald's solution and Giemsa's solution.**

Pappenheim stain products

Product name	Application	Code	Package
Giemsa's Azur-Eosin-Methylene Blue solution (slow) Composition: Azur-Eosin-Methylene Blue dye according to Giemsa ..... 0.5 g Methanol ..... 50 ml Glycerol ..... 50 ml	Differential blood staining; demonstration of blood parasites and protozoa (dilute approx. 1:20)	251338.1608	100 ml
		251338.1610	500 ml
		251338.1611	1000 ml
		251338.1612	2.5 L
May Grünwald's Eosin-Methylene Blue solution Composition: May Grünwald's Eosin-Methylene Blue dye ..... 0.25 g Methanol s.q.m. ..... 100 ml	Differential blood staining	251416.1610	500 ml
		251416.1611	1000 ml
		251416.1612	2.5 L
Methanol (Reag. Ph. Eur.) for analysis, ACS, ISO	Fixative agent	131091.1211	P 1000 ml
		131091.1611	1000 ml
		131091.1212	P 2.5 L
		131091.1612	2.5 L
		131091.1214	P 5 L
Buffer Solution pH 7.2 Composition: Potassium di-Hydrogen Phosphate ..... 40 mg di-Sodium Hydrogen Phosphate 12-hydrate ..... 151 mg Water s.q.m. ..... 100 ml	Buffer solution	252164.1211	P 1000 ml

Wright's stain



The **Wright staining method** is one of the standard techniques in hematological diagnostic procedures. Because it helps to **easily distinguish blood** cells it became a widely used technique for counting **white blood cells,** a routine technique used when infections are suspected.

The staining of the nuclei of the cells is made by the interaction of Eosin Y on one side and the complexation Azur B-DNA. The intensity of the stain depends on the **ratio Azur B and Eosin Y.**

Staining times, the pH value of the solutions and buffers may affect the results.

Product name	Application	Code	Package
Eosin-Methylene Blue solution according to Wright Composition: Eosin-Methylene Blue dye acc. to Wright ..... 0.25 g Methanol s.q.m. ..... 100 ml	Stain widely used for white blood cell counting	251768.1610	500 ml

Other products for Hematology

Product name	Application	Code	Package
Copper(II) Sulfate solution d.1.055 for clinical diagnosis	Determination of blood density	253295.2711	1000 ml
Copper(II) Sulfate solution d.1.053 for clinical diagnosis	Determination of blood density	253296.2711	1000 ml

Auxiliary Products

General Reagents

Product name	Code	Package
Acetic Acid glacial (Reag. Ph. Eur.) for analysis, ACS, ISO	131008.1611	1000 ml
	131008.1211	1000 ml
	131008.1612	2.5 L
	131008.1212	2.5 L
Acetic Acid glacial (USP, BP, Ph. Eur.) pure, pharma grade	141008.1611	1000 ml
	141008.1211	1000 ml
	141008.1612	2.5 L
	141008.1212	2.5 L
Acetic Acid 96% for analysis	122703.1611	1000 ml
	122703.1612	2.5 L
Acetonitrile for UV, IR, HPLC, ACS	361881.1611	1000 ml
	361881.1612	2.5 L
Benedict's Reagent qualitative for clinical diagnosis	251550.1211	1000 ml
Biuret's Reagent for clinical diagnosis	251820.1208	100 ml
Boric Acid for analysis, ACS, ISO	131015.1210	500 g
	131015.1211	1000 g
Brij ® 35 aqueous solution 30% w/v for clinical diagnosis	252317.1611	1000 ml
Buffer solution pH 6.88	277091.1211	1000 ml
tert-Butyl Methyl Ether for UV, IR, HPLC	363312.1611	1000 ml
	363312.1612	2.5 L
Chloroform stabilized with ethanol (Reag. Ph. Eur.) for analysis, ACS, ISO	131252.1611	1000 ml
	131252.1612	2.5 L
Collodion solution 4% w/v (USP) pure, pharma grade	141278.1609	250 ml
	141278.1611	1000 ml
Dichloromethane stabilized with ~ 20 ppm of amylene for UV, IR, HPLC, GPC, ACS	361254.1611	1000 ml
	361254.1612	2.5 L
2,6-Dichlorophenol Indophenol Sodium Salt 2-hydrate (Reag. Ph. Eur.) for analysis, ACS	132056.1604	5 g
Diethyl Ether stabilized with ethanol for pesticide analysis	322551.1611	1000 ml
Diethyl Ether stabilized with ~ 6 ppm of BHT (Reag. Ph. Eur.) for analysis, ACS, ISO	132770.0311	1000 ml
	132770.1612	2.5 L
4-(Dimethylamino) Benzaldehyde (Reag. Ph. Eur.) for analysis, ACS	131293.1608	100 g

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Product name	Code	Package
EDTA Disodium Salt 2-hydrate (Reag. Ph. Eur.) for analysis, ACS	131669.1209	250 g
	131669.1210	500 g
	131669.1211	1 000 g
Ethanol absolute denatured pure (pink colored) *	NC808005000	5 L
Ethanol 94 % denatured pure (pink colored) *	NC202005000	5 L
Ethyl Acetate for pesticide analysis	321318.1611	1000 ml
	321318.1612	2.5 L
Eucalyptol (USP) pure, pharma grade	142085.1611	1000 ml
Fehling's A Reagent for clinical diagnosis CE	251563.1210	500 ml
	251563.1211	1000 ml
Fehling's B Reagent for clinical diagnosis CE	251564.1210	500 ml
	251564.1211	1000 ml
Folin-Ciocalteu's Reagent for clinical diagnosis	251567.1609	250 ml
Formic Acid 98% for analysis, ACS	131030.1611	1000 ml
	131030.1612	2.5 L
General Absorbent technical grade	212520.1210	500 g
D(+)-Glucose anhydrous (USP, BP, Ph. Eur.) pure, pharma grade	141341.1210	500 g
	141341.1211	1000 g
Glycerol, 99% for synthesis	151339.1211	1000 ml
Glycine (Reag. USP) for analysis, ACS	131340.1209	250 g
	131340.1211	1000 g
Glycine (USP, BP, Ph. Eur.) pure, pharma grade	141340.1211	1000 g
n-Hexane for UV, IR, HPLC	362063.1611	1000 ml
	362063.1612	2.5 L
n-Hexane (Reag. USP, Ph. Eur.) for analysis, ACS	132063.1611	1000 ml
	132063.1612	2.5 L
Hydrochloric Acid 37% (USP-NF, BP, Ph. Eur.) pure, pharma grade	141020.1611	1000 ml
	141020.1612	2.5 L
Hydrochloric Acid 1 mol/l (1N) volumetric solution	181021.1211	1000 ml
	181021.1214	5 l
	181021.1315	10 L
Hydrogen Peroxide 33% w/v (110 vol.) stabilized (USP, BP, Ph. Eur.) pure, pharma grade	141077.1211	1000 ml
	141077.1212	2.5 L
Iodine resublimed pearls (USP, BP, Ph. Eur.) pure, pharma grade	141771.1608	100 g
	141771.1609	250 g
Isoamyl Alcohol according to Gerber for analysis	121079.1211	1000 ml
	121079.1212	2.5 L

* Only available in Italy

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Reagents for Hospitals

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Product name	Code	Package
Kovacs' Reagent for clinical diagnosis	252908.1608	100 ml
D(+)-Lactose 1-hydrate (USP-NF, BP, Ph. Eur.) pure, pharma grade	141375.1210	500 g
	141375.1211	1000 g
Light liquid Paraffin (USP-NF, BP, Ph. Eur.) pure, pharma grade	146257.1211	1000 ml
	146257.1212	2.5 L
D(-)-Mannitol (USP, BP, Ph. Eur.) pure, pharma grade	142067.1210	500 g
	142067.1211	1000 g
Methanol for LC-MS	701091.1611	1000 ml
	701091.1612	2.5 L
Nitric Acid 65% pure	143255.1611	1000 ml
	143255.1612	2.5 L
Oxalic Acid 2-hydrate (Reag. Ph. Eur.) for analysis, ACS, ISO	131041.1210	500 g
	131041.1211	1000 g
Paraformaldehyde (DAC) pure, pharma grade	141451.1211	1000 g
Phenol 90% aqueous solution (USP) pure, pharma grade	141323.1611	1000 ml
Phenol Red for analysis, ACS	131615.1604	5 g
	131615.1607	50 g
ortho-Phosphoric Acid 85% for analysis, ACS, ISO	131032.1211	1000 ml
	131032.1212	2.5 L
Picric Acid moistened with ~ 33% of H_2O (Reag. Ph. Eur.) pure	141048.1610	500 g
Picric Acid saturated solution for clinical diagnosis	251049.1610	500 ml
Potassium Carbonate (Reag. Ph. Eur.) for analysis, ACS, ISO	131490.1210	500 g
	131490.1211	1000 g
di-Potassium Hydrogen Phosphate anhydrous (Reag. Ph. Eur.) for analysis, ACS	131512.1209	250 g
	131512.1211	1000 g
Potassium di-Hydrogen Phosphate for analysis, ACS	131509.1210	500 g
	131509.1211	1000 g
Potassium Hydroxide 85% pellets for analysis	121515.1210	500 g
	121515.1211	1000 g
Sodium Acetate 3-hydrate for analysis, ACS, ISO	131632.1210	500 g
	131632.1211	1000 g
Sodium Carbonate anhydrous (Reag. Ph. Eur.) for analysis, ACS	131648.1210	500 g
	131648.1211	1000 g
Sodium Carbonate anhydrous (USP-NF, BP, Ph. Eur.) pure, pharma grade	141648.1210	500 g
	141648.1211	1000 g

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Product name	Code	Package
Sodium Chloride for analysis, ACS, ISO	131659.1210	500 g
	131659.1211	1000 g
	131659.1214	5 kg
tri-Sodium Citrate 2-hydrate for analysis, ACS	131655.1210	500 g
	131655.1211	1000 g
di-Sodium Hydrogen Phosphate anhydrous (Reag. Ph. Eur.) for analysis, ACS	131679.1210	500 g
	131679.1211	1000 g
di-Sodium Hydrogen Phosphate 2-hydrate for analysis	122507.1210	500 g
	122507.1211	1000 g
Sodium di-Hydrogen Phosphate 1-hydrate (Reag. Ph. Eur.) for analysis, ACS	131965.1210	500 g
	131965.1211	1000 g
Sodium Hydroxide pellets for analysis, ACS, ISO	131687.1210	500 g
	131687.1211	1000 g
Sodium Thiosulfate 5-hydrate for analysis, ACS	131721.1210	500 g
	131721.1211	1000 g
Starch from Potato soluble (Reag. USP, Ph. Eur.) for analysis	121096.1210	500 g
	121096.1211	1000 g
D(+)-Sucrose for analysis, ACS	131621.1210	500 g
	131621.1211	1000 g
Sweet Almonds Oil technical grade	212805.1611	1000 ml

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Reagents for Hospitals

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Product name	Code	Package
Trichloroacetic Acid (Reag. Ph. Eur.) for analysis, ACS	131067.1608	100 g
	131067.1609	250 g
	131067.1611	1000 g
Trichloroacetic Acid solution 20% w/v for clinical diagnosis	252373.1611	1000 ml
Tris for analysis, ACS	131940.1209	250 g
	131940.1211	1000 g
Vaseline Oil (USP, BP, Ph. Eur.) pure, pharma grade	141003.1209	250 ml
	141003.1211	1000 ml
Vaseline Soft technical grade	211757.1209	250 g
	211757.1211	1000 g
Water technical grade	211074.1211	1000 ml
	211074.1214	5 L
	211074.0715	10 L

pH Indicator strips

Product name	Application	Code	Package
Non bleeding sticks pH 0-14 (gradation 1.0)	Universal pH indicator	524164.1826	100 strips
Non bleeding sticks pH 0.0-6.0 (gradation 0.5)	Acid pH indicator	524167.1826	100 strips
Non bleeding sticks pH 4.5-10.0 (gradation 0.5)	Neutral pH indicator	524165.1826	100 strips
Non bleeding sticks pH 7.0-14.0 (gradation 0.5)	Alkali pH indicator	524168.1826	100 strips

pH-determination quick, easy, safe
- Safe analysis by long plastic handle
- Several test pads for exact results
- No bleeding due to color bounded indicator dyes

Derquim detergents

Product name	Application	Code	Package
DERQUIM + Universal Detergent, LIQUID	Universal detergent	503574.1211	1000 ml
		503574.1246	4 L
		503574.1315	10 L
MACHINE WASHING			
DERQUIM LA 11 Slightly alkaline SOLID	Removal of residues in laboratories	502603.1245	2 kg
		502603.0415	10 kg
DERQUIM LA 12 Alkaline SOLID	Strong cleaning agent, useful for starch and protein residues	502604.1245	2 kg
		502604.0415	10 kg
		502604.0416	25 kg
DERQUIM LA 13 Alkaline with detergents SOLID	Strong cleaning agent specially for fatty acids	502605.0415	10 kg
DERQUIM LA 14 Slightly alkaline LIQUID	Good cleaning agent for machines with liquid dosing, indicated for analytical laboratories	502606.1246	4 L
		502606.0716	25 L
DERQUIM LA 15 Alkaline LIQUID	Strong cleaning agent	502607.1246	4 L
DERQUIM LA 21 Acid, with phosphoric acid LIQUID	Pre-wash for residues of amines, carbonates, hydroxides, proteines and so on; neutralizing effect, prevents calcification	502608.1246	4 L
DERQUIM LA 22 Acid, with citric acid LIQUID	Pre-wash with neutralizing effects, prevents calcification	502609.1246	4 L
MANUAL WASHING			
DERQUIM LM 01 Alkaline LIQUID	General detergent for very contaminated items, also for bench tops, suitable for ultrasonic cleaning	502600.1246	4 L
DERQUIM LM 02 Neutral, phosphates free LIQUID	Special for cleaning of precision equipment made of glass, quartz, and sensitive metals, suitable for ultrasonic cleaning	502601.1246	4 L
		502601.1315	10 L
		502601.0716	25 L
DERQUIM LM 03 Phosphates free LIQUID	General detergent for very contaminated items, suitable for ultrasonic cleaning	502602.1246	4 L
DERQUIM MC Chromic Mixture	Elimination of organic waste resistant to detergents	502612.2211	1000 ml
DERQUIM SALT (Sodium Chloride lumps)	For water decalcification	503468.0415	10 kg
		503468.0416	25 kg

DERQUIM products have been specially made for cleaning the laboratory equipment. They can be used in the manual cleaning (series LM) or for washing using automatic machines (series LA). The various formulations are specifically adapted to any kind of laboratory residue: chemical, biological or clinical.

Reagents for Hospitals

Research Laboratories

Many hospitals also have Research Laboratories that focus on basic science on an academic basis. These laboratories use the conventional techniques for Genomics, Proteomics and Cell Culture procedures.

Reagents for Genomics

Research into how genetic variants can guide successful **treatments** will become part of routine medical practice and records. Nucleic acid isolation, PCR, cloning, sequencing, electrophoresis, blotting are the main techniques used in genomics.

On **PCR techniques, nucleic acid decontamination** in the work station and in the whole laboratory is essential to preserve correct results.

ExitusPlus™ technology assures complete decontamination and it is:

- **Non dangerous** for health
- **Non corrosive** for surfaces
- **Biodegradable**

PCR

Product name	Application	Code	Package
SuperHot Taq DNA Polymerase	Complex genomic or cDNA templates, low copy number targets, large numbers of thermal cycles, multiplex PCR	A5231,0200	200 U
Water PCR tested, DNA free, for molecular biology	Universal solvent for PCR	A8510,1017	10 x 1.7 ml

DNA Decontamination

Product name	Application	Code	Package
DNA-ExitusPlus™ IF	Decontamination solution for the removal of DNA and RNA contaminations	A7409,0100	100 ml
		A7409,0250	250 ml
		A7409,0500	500 ml
RNase-ExitusPlus™	Decontamination removal solution for RNase	A7153,0500	500 ml

Gel electrophoresis

Product name	Application	Code	Package
DNA-Dye NonTox	Ethidium bromide substitute	A9555,1000	1 ml
Agarose low EEO (Agarose Standard)	Recommended for the preparation of analytical and preparative gels with a very good resolution of nucleic acid fragments with sizes larger than 1000 bp	A2114,0100	100 g
		A2114,0250	250 g
		A2114,0500	500 g
DNA ladder 100bp (lyophilised)	DNA Size Standard for Gel Electrophoresis	A3470,0050	50 µg

Nucleic Acid Isolation

Product name	Application	Code	Package
Proteinase K	Proteinase K is used to destruct proteins in cell lysates	A3830,0025	25 mg
		A3830,0100	100 mg
		A3830,0500	500 mg
DNase I	Used in molecular biology techniques like digestion of DNA, in the RNA purification or generating "random nicks" for "nick translation" or 'footprint'-assays, or investigations on chromatin	A3778,0010	10 mg
		A3778,0050	50 mg
		A3778,0100	100 mg
		A3778,0500	500 mg
Lysozyme for molecular biology	Used to lyse *E. coli* for the isolation of plasmid-DNA	A4972,0001	1 g
		A4972,0010	10 g
TRItidy G™	Ready-to-use solution for the simultaneous isolation of RNA, DNA and proteins	A4051,0100	100 ml
		A4051,0200	200 ml

Reagents for Hospitals

Cloning Assays

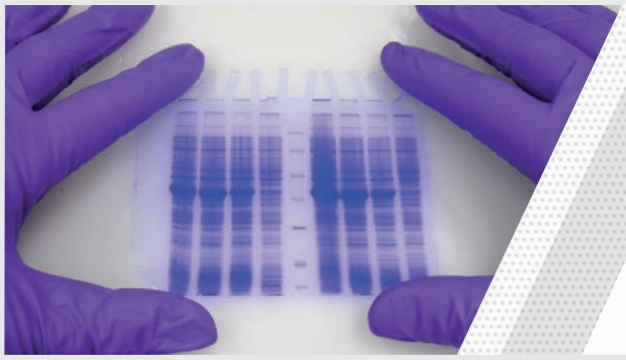
Product name	Application	Code	Package
IPTG for molecular biology 	The most commonly used synthetic inductor of the Lac-operon since it is both active at very low concentrations and not subject to enzymatic degradation	A4773,0005	5 g
		A4773,0025	25 g
X-Gal for molecular biology	It is used for the identification of lacZ+ bacteria, especially for the assay of β-galactosidase, expressed from recombinant vectors	A4978,0500	25 g
		A4978,0001	1 g

Buffers and Solvents

Product name	Application	Code	Package
Tris for molecular biology 	Tris is the most commonly used buffer in biological research, component of TBE, TAE and TE Buffers	A2264,0500	500 g
		A2264,1000	1000 g
		A2264,5000	5 kg
EDTA for molecular biology	EDTA is a chelator of calcium, magnesium and zinc ions and therefore may inhibit metallo proteases	A5097,0500	500 g
Acetic Acid 100 % for molecular biology	Component of TAE Buffer for electrophoresis	A3686,1000	1000 ml

Reagents for Proteomics

Although genomics has delivered major advances in **cancer prognostics**, treatment and diagnostics, it still only provides a static image of the situation. To study more dynamic molecular entities, proteomics has been introduced into the cancer research field more than a decade ago. Currently, however, the impact of clinical proteomics on patient management and clinical decision-making is low and the implementations of scientific results in the clinic appear to be scarce.



The search for cancer-related biomarkers with proteomics however, has major potential to improve risk assessment, early detection, diagnosis, prognosis, treatment selection and monitoring. Main techniques used in **proteomics are electrophoresis and blotting.**

Products for electrophoresis and blotting

Product name	Application	Code	Package
GEL ELECTROPHORESIS COMPONENTS			
Acrylamide 4K solution (30 %) - Mix 37.5 : 1	For most applications in the electrophoresis of nucleic acids or proteins, polyacrylamide gels are prepared from 30 % or 40 % stock solutions with a ratio Acrylamide : Bisacrylamide of 29 : 1 or 37.5 : 1	A1672,0500	500 ml
		A1672,1000	1000 ml
Ammonium Persulfate BioChemica	Ammonium persulfate (APS) serves as the initiators of the polymerization of Acrylamide	A1142,0250	250 g
Glycine for molecular biology 	One of the most commonly used buffer in the polyacrylamide gel electrophoresis for proteins is based on the work of Laemmli	A1067,0500	500 g
		A1067,1000	1 kg
		A1067,5000	5 kg
SDS BioChemica	For SDS polyacrylamide gels	A2572,0250	250 g
		A2572,0500	500 g
		A2572,1000	1 kg
TEMED	Enhancer of the polymerization (cross-linking) of acrylamide and bisacrylamide in gel electrophoresis	A1148,0025	25 ml
		A1148,0100	100 ml
Tris ultrapure	One of its most important applications is the use as an electrophoresis buffer (e.g. TBE, see A1417 and A0972 or TAE, see A1416 and A1691) for polyacrylamide and agarose gel electrophoresis, respectively	A1086,0500	500 g
		A1086,1000	1 kg
		A1086,5000	5 kg
		A1086,9010	10 kg

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Reagents for Hospitals

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Product name	Application	Code	Package
BLOCKING AGENTS			
Albumin Fraction V (pH 7.0) 	Applied as a blocking agent for blocking unbound surfaces of blotting membranes in immunoblots or ELISAs, also used for the dilution of antisera and antibody-stock solutions	A1391,0025	25 g
		A1391,0050	50 g
		A1391,0100	100 g
		A1391,0250	250 g
		A1391,0500	500 g
Blocking Buffer I	Saturates free binding capacities on plastic consumables and other surfaces like ELISA plates and blotting membranes, thus a reduction of unspecific binding on surfaces can be achieved	A7099,0125	125 ml
		A7099,0500	500 ml
TRANSFER MEMBRANES			
Pure Nitrocellulose unsupported 0.45 µm Transfer Membrane	Used for Southern and Northern blots; Dot/Slot blots, Western blots and immunoblotting	A5239,3030R	30 cm x 3 m Roll
PVDF-Star Transfer Membrane 0.45 µm	Used for Western Blots, immunoblotting and amino acid and protein analysis	A5243,3030R	30 cm x 3 m Roll
PROTEIN DETECTION			
CheLuminate-HRP PicoDetect	Kit for medium and poorly expressed proteins	A3417,1200	1 Kit
Coomassie® Brilliant Blue R-250 (C.I. 42660)	One of the most commonly used stains for proteins, after their separation by polyacrylamide gel electrophoresis	A1092,0025	25 g
		A1092,0100	100 g
Ponceau S solution	For the staining of proteins immobilized on nitrocellulose filters, it is particularly suitable for reversible staining of proteins on transfer membranes during immunoblotting	A2935,0500	500 ml
GENERAL BIOCHEMICALS FOR PROTEIN PURIFICATION, ELECTROPHORESIS AND WESTERN BLOTTING			
Protein Marker VI (10 – 245) prestained	Protein Gel Electrophoresis Size Marker, Blue-Green-Red Protein Ladder	A8889,0500	500 µl
Acetic Acid 100 % BioChemica	For protein staining solution preparation	A3701,1000PE	1000 ml
		A3701,2500PE	2.5 L
DTT BioChemica	It may substitute for β-mercaptoethanol in almost all experiments at three to four fold lower concentrations. DTT is less toxic, its odor is less intensive and it doesn't form mixed disulfides like β-mercaptoethanol	A1101,0005	5 g
		A1101,0025	25 g
		A1101,0100	100 g

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Product name	Application	Code	Package
β-Mercaptoethanol Molecular biology grade	Reducing agent used for the reduction of proteins during sample preparation, it prevents protein oxidation and acts as a denaturing agent of ribonucleases	A1108,0100	100 ml
		A1108,0500	500 ml
Methanol BioChemica	For western blotting	A3493,1000PE	1 L
		A3493,5000	5 L
Tween® 20 for molecular biology	For blocking buffers	A4974,0100	100 ml
		A4974,0250	250 ml
		A4974,0500	500 ml
		A4974,1000	1 L
Urea BioChemica	For Tris Urea gels, for protein staining solution preparation	A1360,5000	5 kg
		A1360,9010	10 kg
PBS tablets pH 7.4 (for 500 ml)	Used in a wide range of applications including Tissue culture/ Cell culture; Sample dilution/ Protein dilution; Immunoassays/ Immuno-histochemistry; Microbiology	A9191,0100	100 Tabs

Reagents for Cell Culture

Cell Biology focuses on the work with living organisms. Cells are used as they are the basic unit of life and make it easier to investigate questions that by using complex organism could not be and would also be unethical. Cell Biology is mainly used to investigate metabolic processes, signaling pathways, reactions to substances, but is also very important in cancer research. There are big connections to Genetics, Biochemistry, Molecular Biology, Immunology and Developmental Biology.

In Cell Culture it is important to work clean as contaminations are very frustrating for the scientist and in the end also very expensive. PanReac AppliChem offers a variety of products for prevention, detection and fighting against contamination.

Banish cell culture contamination

Product name	Application	Code	Package
MYCOPLASMA PREVENTION			
Incubator-Clean™	Spray for incubators that prevents contamination with fungi, molds, bacteria, mycoplasma and viruses	A5230,0500	500 ml
Incuwater-Clean™	100X ready-to-use solution to prevent contamination for the incubator's water bath	A5219,0100	100 ml
Aquabator-Clean™ (100X)	Intended for disinfecting various kinds of water baths from bacteria and fungi	A9390,0250	250 ml
MYCOPLASMA DETECTION			
PCR Mycoplasma Test Kit I	Designed to detect the presence of mycoplasma contaminating biological materials by conventional PCR, includes internal control and DNA polymerase	A9753,0025	25 Test
qPCR Mycoplasma Test Kit	Based on a 5-Nuclease probe assay for qPCR, which is established as the method of choice for highest sensitivity in the detection of Mycoplasma and Acholeplasma contamination	A9019,0025	25 Test
DAPI BioChemica	The most popular application of DAPI is its use as a reagent to detect mycoplasma or virus DNA in the cell culture	A1001,0010	10 mg
		A1001,0025	25 mg
		A1001,0100	100 mg
MYCOPLASMA ELIMINATION			
Myco-1 & 2 Set	Myco-1 is based on the antibiotic Tiamulin, and Myco-2 is based on Minocycline, a Tetracycline derivative, both are generally used sequentially in combination	A8360,0010	1 Set
Myco-4	Myco-4 is a combination of standard antibiotics and biological reagents that integrate into the mycoplasma membrane and compromise its integrity	A8366,0002	2 Kits

Trends on new techniques for Clinical Diagnosis

Liquid Biopsies

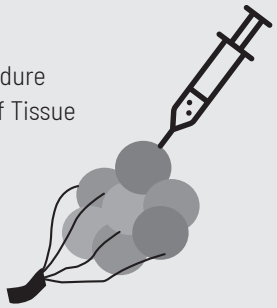
Liquid biopsy is a new method to obtain biomarkers directly from body fluids such as plasma (blood) or urine instead of solid tissue as in the traditional biopsy.

Comparison standard biopsy vs liquid biopsy

The obvious advantage of this method is its non-invasiveness and the ease of sample collection. However, there are certain intricacies which require a careful pre-analytical sample preparation.

Standard Biopsy

- Time-Intensive Procedure
- Localized Sampling of Tissue
- Not Easily Obtained
- Some Pain/Risk
- Invasive

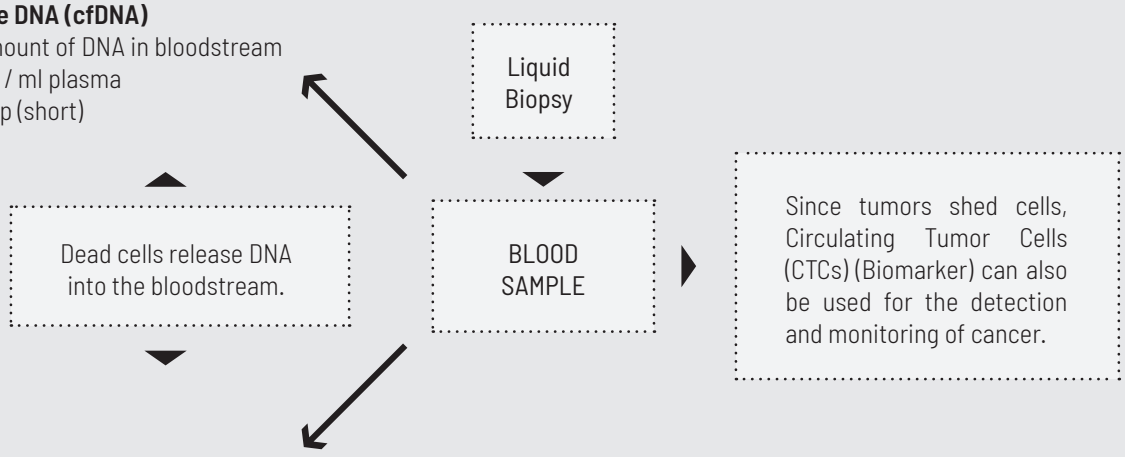


Liquid Biopsy

- Quick
- Comprehensive Tissue Profile
- Easily Obtained
- Minimal Pain/Risk
- Minimally Invasive

Technique principle

Cell-free DNA (cfDNA)
Total amount of DNA in bloodstream
< 100 ng / ml plasma
< 1000 bp (short)



Circulating tumor DNA (ctDNA)(Biomarker)
DNA released by tumoral cells:
ctDNA < 1% cfDNA.
ctDNA shorter than cfDNA in bp

Reagents for Hospitals

Key step: detection of the biomarkers ctDNA and CTCs

Circulating tumor DNA (ctDNA)
DNA released by tumoral cells:
ctDNA < 1% cfDNA.
ctDNA shorter than cfDNA in bp

TECHNIQUES USED:
- DNA ISOLATION
- qPCR, ddPCR

Circulating Tumor Cells (CTCs)
DNA released by tumoral cells:
ctDNA < 1% cfDNA.
ctDNA shorter than cfDNA in bp

TECHNIQUES USED:
- DNA ISOLATION
- qPCR, ddPCR
- Inmunological Techniques

Examples of PanReac AppliChem reagents used in liquid biopsies

Sample collect

- Stretch tubes
- EDTA blood collection tubes

Example:
141026 EDTA (USP-NF, BP, Ph. Eur) pure, pharma grade or similar

Extract

- cfDNA extraction from plasma samples using kits

Example:
A5193 DNA Isolation Spin-Kit Agarose

Quantify and QC

- qPCR assay
- ddPCR assay

Example:
A5186 Taq Polymerase

Analyze

Biomarker detection
qPCR assay
ddPCR assay
Immunology tec.

Example:
Products for PCR Immunoassay buffers

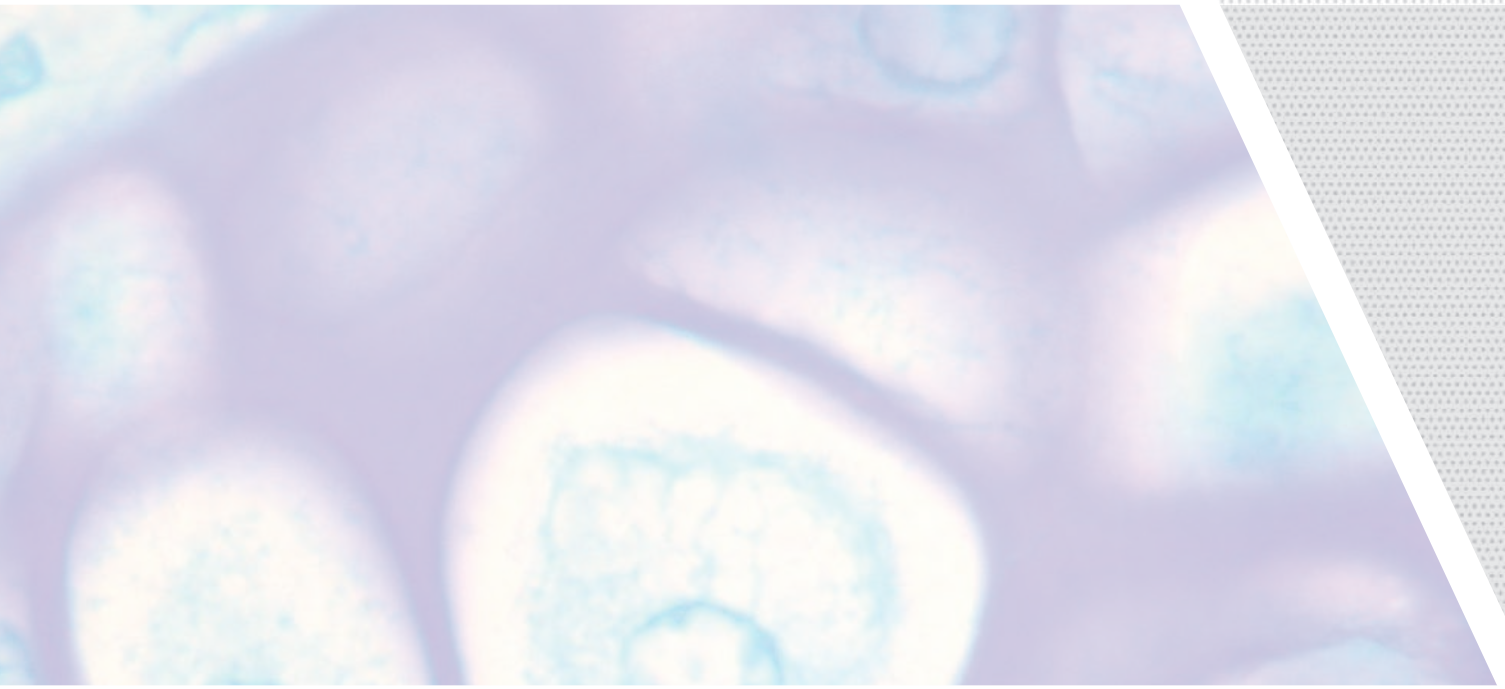
Data report

Software

Package pictograms

	Glass bottle
	Plastic bottle
	Plastic jerrycan
	Plastic bucket
	Sol-Pack: Plastic container in a carton box (cubitainer), with tap
	Co-extrusion bottle (multilayer)
	Co-extrusion jerrycan (multilayer)
	Plastic tube with screw cap
	Plastic spray bottle
	Plastic bottle with dropper
	Aluminium bottle
	Steel-plated drum
	Paper bag
	Carton box with inner plastic bag
	Paperboard box
	Glass bottle coated with plastic

A193,EN;201901



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